THE
physical therapy REVIEW

36th Annual Conference
American Physical Therapy Association
Hotel Leamington Minneapolis, Minnesota
June 21-26, 1959

Evaluation of Equanil® as Adjunct to Physical Therapy for Children with Severe Cerebral Palsy — GELPERIN and PAYTON

The Management of Myofascial Pain Syndromes — BONICA

Physical Therapy in Surgical Treatment of Pulmonary Tuberculosis —HEMENWAY and BOWEN

Application of Client-Centered Counseling to Clinical Teaching — GEHMAN

Case Reports — McINTIRE

Suggestions from the Field
LOUIE
VOLLE

Conference Issue

Volume 39, Number 6 **June 1959**

PUBLISHED MONTHLY BY
AMERICAN PHYSICAL THERAPY ASSOCIATION

PRESTON

A Complete Line

FOR PHYSICAL MEDICINE AND REHABILITATION

Your one source for all your needs

Write today for your Free copy of

THE ILLUSTRATED PRESTON CATALOG 1058

Describes the leading and most complete line of Equipment for Rehabilitation Exercise, Hydrotherapy and Electrotherapy. Also: Diagnostic Apparatus, Traction Devices, Cerebral-Palsy Furniture, Wheelchairs, Walkers, Lifters, Crutches and Self-Help Devices.

The Catalog is now enlarged by Supplement B—just off the press . . . a compilation of 127 important new and recent additions to the Preston Line. You will find many of these items of direct value to you.

For your free copy simply drop us a note.

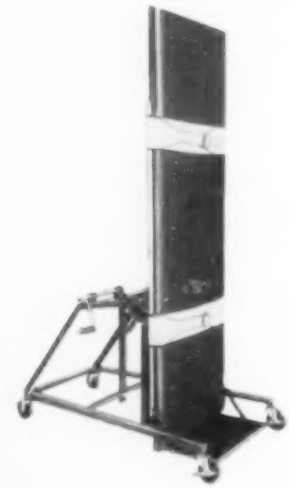
THE N-K EXERCISE UNIT

Developed for the most effective administration of progressive resistance exercise to the knee joint muscle groups. The convenient, time-saving application and the variable-resistance patterns which are found only in the patented N-K Unit make it a must in all Physical Therapy Departments.

Accurate control of the amount of resistance is achieved through the use of calibrated weights which can be easily moved along the resistance arm to provide a conventional ½, ¾ and maximum resistance sequence without adding weights. In time economy, comfort and effectiveness, "N-K leads the way." Order by Catalog Numbers:

PC 2251A N-K Exercise Unit, Standard Model 100B with upholstered chrome plated table **$179.50**

PC 2251F Folding Model 200B with folding table for wall attachment **$179.50**



THE PRESTON STANDING TABLE

Designed for ease of operation, complete safety and simplicity. Tilts from horizontal to vertical position by means of a conveniently located hand crank, and locks automatically at any desired angle. Passes through narrow doorways and corridors.

Height of top is only 32" from floor to facilitate transfer of patient from bed or stretcher to table. Its four large 4" ball-bearing swivel casters make it easy to move. Two of the casters have step-on brakes. Table top is a comfortable 24" wide, 78" long and is upholstered with durable waterproof leatherette. Stores in small space when not in use—requires only 29" x 44" for storage.

The Preston Standing Table is the most popular and widely used model in Physical Therapy Departments. Please order by Catalog Number:

PC 7194U Preston Standing Table including upholstered top, complete with 4" casters and 2 restrainer straps **Only $245.00**

J. A. PRESTON CORP.

175 Fifth Avenue, New York 10, New York

Items of Special Interest

PRESTON

WRITE FOR ILLUSTRATED LITERATURE

HAND AND FOOT PARAFFIN BATH

An important adjunct in the treatment of arthritic hands and feet. Also useful in after-treatment of traumatic conditions involving the extremities.

This paraffin bath is electrically heated and thermostatically controlled to melt and maintain the paraffin in a liquid state at the desired treatment temperature. Tank is constructed of heavy stainless steel of double wall design and well insulated. Inner tank of seamless, complete and continuous electrically welded construction. To operate the bath, simply plug it into the standard 115 Volt 60 Cycle AC outlet. Order by Catalog Numbers:

PC 4110—Hand and Foot Paraffin Bath—Portable Model PB110—Tank 15" x 7" x 10" deep; overall height 27". Complete with removable stand on ball bearing casters, paraffin, oil, and thermometer **$290.00**

PC 4113—Combination Arm, Hand, Foot and Leg Paraffin Bath—Model PB111—Tank is 22" x 14" x 22" deep; overall height 31½". Complete with 100 lbs of paraffin, 3 gallons paraffin oil, and thermometer (not illustrated) **$895.00**

MOBILE SITZ BATHS

To apply aqueous conductive heat to perineal, genital, and rectal areas. The Sitz Bath can easily be moved to patient's bedside. It has a tubular aluminum frame with backrest; four casters (two with brakes); removable stainless steel suspension seat; built-in electric heater to maintain temperature of water; 10-foot cord with grounded plug and 10-foot ground wire with clamp; filling and emptying hose. Chair is 35" high, 29" deep, 24" wide and light weight for easy mobility —115 Volt AC-DC. Order by Catalog Numbers:

PC 4065—Mobile Sitz Bath Complete with electric heater **$215.00**
PC 4066—Same but without electric heater **$190.00**

STATIONARY ARM AND LEG CONTRAST BATHS

A desirable unit to round out your hydrotherapy section. Complete Contrast Bath consists of two arm and two leg tanks. Arm tanks are mounted on steel pedestals in aluminum finish; leg tanks rest directly on floor and permit interconnection of drain and overflow pipes. Furnished with thermostatic water-mixing valve assembly; all necessary inlet and outlet pipes and fittings in chrome finish; interconnected waste and overflow; dial thermometer; stool with chrome-plated seat adjustable from 19" to 25". All tanks are of heavy stainless steel construction. Please order by Catalog Number:

PC 4044—Stationary Arm and Leg Contrast Baths Complete **$990.00**

J. A. PRESTON CORP.
175 Fifth Avenue, New York 10, New York

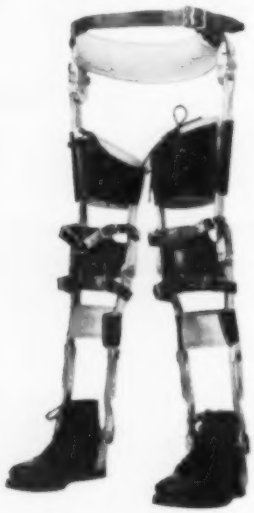
Custom Made

CEREBRAL PALSY
CONTROL BRACES

BY THE

C. D. DENISON
ORTHOPAEDIC APPLIANCE CORP.

(Ortho. Appl. Atlas—Pages 521-535)



To Obtain
DENISON'S C. P. BRACES
Ask Your Local Orthopaedic
Appliance Representative

In areas where Representatives
are not available, please
contact us direct

TRAINING AIDS CATALOGUE
available on request.

220 West 28th Street
Baltimore 11, Maryland

Booklets Received

Understanding Aphasia. A Guide for Family and Friends.

By Martha L. Taylor. Patient Publication No. 2. The Institute of Physical Medicine and Rehabilitation, New York University-Bellevue Medical Center, Pages 48, price 50¢, 1958.

Speech Recovery After Total Laryngectomy.

By C. J. Hodson and M. V. O. Oswald. Edinburgh, Williams & Wilkins. Pages 36, price $1.50; 1959.

The Mentally Retarded Child at Home. A Manual for Parents.

By Laura L. Dittman, Children's Bureau, U. S. Department of Health, Education and Welfare, Washington, D.C. Price 35¢; pages 99, 1959.

An Evaluation of Rehabilitation of Patients With Hemiparesis or Hemiplegia Due to Cerebral Vascular Disease.

Rehabilitation Monograph XV. Philip R. Lee, Sigmond Groch, John Untereker, John Silson, Michael M. Dasco, Daniel J. Feldman, Kathleen Monahan, and Howard Rusk. The Institute of Physical Medicine and Rehabilitation, New York University-Bellevue Medical Center, Price $1.00; pages 45, 1958.

Saving Lives.

American Heart Association—1958 Annual Report. New York, pages 36.

Report of Third Institute on Swimming for the Physically Handicapped

Edited by W. Gilbert Wolf and Laurence P. Murray, Connecticut Society for Crippled Children and Adults, Inc., Price 50¢, pages 23, 1958.

Medical Research in the Veterans Administration Vol. 1.

Prepared by the Department of Medicine and Surgery of the Veterans Administration, Washington, D.C. Government Printing Office, Pages 54, 1959.

Tratamiento de Pacientes Hemiplejicos.

New York State Department of Health Chronic Diseases and Geriatric Monograph # 1, New York, International Society for the Welfare of Cripples. Price 25¢, pages 37, 1957.

Organización del Departamento Terapéutica Ocupacional.

Consejo de la Federación Mundial de Terapistas Ocupacionales, International Society for the Welfare of Cripples, pages 23, 1958.

Fitness of American Youth.

A Report to the President of the United States on the Fort Ritchie Meeting, United States Government Printing Office, Washington 25, D.C. Price 25¢; pages 56, 1958.

Prostheses, Braces, and Technical Aids.

International Technical and Medical Bulletin, English Edition (with a Spanish Summary). Published by the International Society for the Welfare of Cripples, Committee on Prostheses, Braces and Technical Aids. Editor, P. Heg, Albrethsen, 34 Esplanaden, Copenhagen, Denmark, Pages 24. No. 4, Spring, 1959.

NEW CAMP VICTORIA COLLAR

is adjustable for both positions of extension and flexion

When the patient needs neck support for cervical syndrome, subluxations, arthritis, cervical radiculitis . . . when convalescence after casts in fractures or dislocations is indicated, this new, universal Thomas Collar offers the most effective, comfortable support. The "open throat" area assures comfort during hot and cold seasons . . . it is light, yet the simple, rigid construction gives greater patient support than other Thomas Collars. It has the double advantage of (1) being adjustable for positions of extension and flexion (2) having a wide range of adjustability for various neck heights. Easy to put on, adjust and shape to fit. The bottom ring is supported by the patient's shoulder girdles and the adjusting turnbuckles regulate the height of the ring . . . thus the desired height and immobility is attained. Available in small, medium and large sizes.

S. H. CAMP and COMPANY CAMP TRADE MARK Jackson, Michigan

Physical Therapy Review

June 1959
Vol. 39 No. 6

IN THIS ISSUE

Evaluation of Equanil® as Adjunct to Physical Therapy with Severe Cerebral Palsy—Abraham Gelperin, M.D., and Otto Payton 383

The Management of Myofascial Pain Syndromes—John J. Bonica, M.D. 389

Physical Therapy in Surgical Treatment of Pulmonary Tuberculosis—Mary Hemenway, Capt., AMSC, and Clotilde D. Bowen, Major, MC 396

Application of Client-Centered Counseling to Clinical Teaching—W. Scott Gehman, Ph.D. 401

Regular Features

Case Reports

Physical Therapy for Dermatomyositis and Pulmonary Tuberculosis — Patricia McIntire 404

Suggestions from the Field

A Table for Mechanically Resistive Exercise—George C. Louie 405

Bi-Level Homemade Bed Elevator—Margret Volle . 407

Editorial 410

Association News 413

Conference 1959 414

World Confederation for Physical Therapy 429

Education 430

Student Column 430

Short Term Courses 431

Schools Offering Courses in Physical Therapy ... 432

Abstracts 434

Book Reviews 438

Book Reviewers for June 442

What's New 441

State Board Examinations —1959 376

Index to Current Literature 378

American Physical Therapy Association

Officers

Agnes P. Snyder ..... President
Mary E. Kolb ..... First Vice President
Dorothy Hewitt ..... Second Vice President
Jean Bailey ..... Secretary
Anthony DeRosa ..... Treasurer

Advisory Council

Eric Denhoff, M.D.
Thomas F. Hines, M.D.
W. T. Sanger, Ph.D.
A. R. Shands, Jr., M.D.

National Office Staff

Lucy Blair ..... Acting Executive Director

Chapter-Membership Services

Dorothy E. Voss — Margery Lynch

Educational Services

Sarah S. Rogers — Helen H. Klein
Patricia M. Bauchle

Professional Services

Lucy Blair — Lillian E. Chabala

Associate Editors

Barbara R. Friz, Chairman
Kathryn Shaffer
Jessie F. Waddell
Marian Williams

Editor in Chief

Dorothy E. Voss

Managing Editor

Carol Vance

Advertising Representative

Gordon M. Marshall Co.
Chicago office: 30 West Washington St. Chicago 2, Illinois Telephone DEarborn 2-5148
New York Office: Room 340, 15 West 44 St. New York 36, New Work Telephone OXford 7-5262

The *Physical Therapy Review* is published monthly by the American Physical Therapy Association, 1790 Broadway, New York 19, N.Y. Reentered as second class matter August 11, 1949 at the post office at New York, N. Y., under the act of Congress of Aug. 24, 1912.

Subscription rates: $7.00 per year to nonmembers: $8.00 in Canada and foreign countries.

Single copies $1.00

Available in microfilm edition.

The statements in the manuscripts published in The *Physical Therapy Review* are made solely on the responsibility of the author. Material published in the *Review* is covered by copyright and may only be published or reproduced elsewhere after permission is obtained.

Copyright © 1959 by the American Physical Therapy Association

American Physical Therapy Association, 1790 Broadway, New York 19, N. Y. Telephone COlumbus 5-0430

NO. 26 IN A SERIES

MISS PHOEBE

Yes, my Everest & Jennings chair *is* a work of art, gentlemen, but shouldn't first prize go to a *painting?*"

E J

New MONO-DRIVE chair combines power and ease of operation with unbelievable comfort.

The beautiful triple-chrome finish and modern design of Everest & Jennings' chairs *do* attract approving glances. Patients quickly overcome "wheel chair shyness" and are proud to go places and be seen in their E & J chairs. When a wheel chair is indicated, you can suggest an E & J chair with confidence.

There's a helpful authorized dealer near you

EVEREST & JENNINGS, INC., LOS ANGELES 25

CALIFORNIA CALLING

PHYSICAL THERAPISTS

Positions for qualified physical therapists are immediately available in California's State Hospitals, Veterans' Home, and Schools for the Handicapped. Streamlined examinations are held twice monthly in San Francisco and Los Angeles, and at applicant's convenience in other states. Good salaries. Promotion by merit program. Liberal employee benefits. Graduation from approved schools for Physical Therapists is required. New legislation provides for practice under professional supervision pending registration with the California Medical Board.

write today for details

Medical Personnel Services, Dept. 72, State Personnel Board
801 Capitol Avenue, Sacramento 14, California

HM-801
FULL BODY IMMERSION TANK

"Figure 8" design permits all parts of the body to be reached from either side without entering tank. Twin Electric Turbine Ejectors provide double action hydromassage. Overhead hoist facilitates handling of non-ambulatory patients.

PB-110
PARAFFIN BATH
(for hand, wrist, elbow or foot)

Stainless steel, thermostatically controlled electric heating unit, dial thermometer. Removable stand.

ILLE:

A DISTINGUISHED NAME IN HYDRO- AND PHYSICAL THERAPY EQUIPMENT

MA-105
MOISTAIRE HEAT THERAPY UNIT

Delivers temperature-controlled moist heat safely and effectively. Complete with stainless steel treatment hood, table, latex foam table pad, nylon moistureproof curtains and 4-quart filling can.

SB-100
HUDGINS MOBILE SITZ BATH

For postoperative rectal or postpartum care of the perineal area. Sturdy stainless steel and aluminum construction. Optional maintenance electric heater.

ILLE ELECTRIC CORPORATION
Reach Road, Williamsport, Pa.

2 BLOCKS FROM BEAUTIFUL LAKE MICHIGAN'S PARKS *and* BEACHES IN THE HEART OF CHICAGO'S VACATION-LAND!

JOIN THE STAFF CHICAGO WESLEY MEMORIAL HOSPITAL

PHYSICAL THERAPIST Male or Female

Our expanding physical therapy department . . . moving soon to larger quarters . . . utilizing absolutely the latest equipment . . . our large number of varied cases . . . combine to offer qualified physical therapists an ideal opportunity for personal development and growth. Starting salary is good.

CHICAGO WESLEY'S new $7,000,000.00 addition, the most modern type of construction, has 6,000 square feet just for Research Laboratories.

At Wesley you have the finest of working conditions. Chicago is a recognized medical center, an enjoyable town in which to live and work.

Your application will be kept confidential and you will be given an immediate reply. Write Mr. L. J. Spirer, Personnel Department.

CHICAGO WESLEY MEMORIAL HOSPITAL
250 E. Superior St. Chicago 11, Illinois

LaBerne Shoulder Rotator

The LaBerne Shoulder Rotator offers Progressive and Resistive Exercises in a complete range, for Internal and External Rotation, Unilateral and Bilateral Extensor, Scapula Rotation, and Elbow Flexor Exercise. Built with Sensitive Resistance-Pressure Plate adjustable in height. Calibrated for 0 to 80 lbs.

Price including table 28 x 30 x 32

Model # 9952 $159.50

Price without table with bracket for attaching to plinth,

Model # 9952-A $ 89.50

Showing Resistance Control Calibration in pounds. →

LaBerne Extension-Flexion Exercise Unit

Designed for a complete range of Progressive Resistive Exercise to the Knee Joint Muscle Group WITHOUT THE USE OF WEIGHTS.

Exercise arm built with Reversible Ratchet on Sensitive Pressure Plate offering any desired resistance calibrated in lbs. from 0 to 80. Range of motion indicator in full view of patient and therapist for accurately following Range Progress. Ideal for use with BK Amputees and BK Fractures, may also be used for Hamstring Exercise, Hip Abduction and Extension. Complete unit including table 28 x 30 x 32 with Quadriceps Rest, Model # 9950

$159.50

Above unit with Shoulder Rotator included, Model # 9951 $239.00

Showing use for BK amputees and fractures. Range of motion dial calibrated in pounds. →

LaBerne Hip Rotator

Designed for complete rotation of Hip Joint. Rotation Plate built at 8° angle to eliminate bending of knee during rotation. Mounted on roller bearings with Adjustable Arc from 4" to 12" circle. Model # 66 $49.50

ALL PRICES FOB COLUMBIA

La Berne MANUFACTURING COMPANY

Columbia, S.C. P.O. Box 5245 Phone SUnset 7-6162

ORIGINATORS OF THE "WALK-OFF" PHYSICAL THERAPY TABLE

Therapists Depend on

Rehabilitation Products

—The Place To Go For The Names You Know

Here are items from R/P's complete line of tested therapeutic and exercise equipment—items from every leading manufacturer. You can be sure of the service, quality and economy you want when you deal with R/P.

Rollfast Bicycle Exerciser

Helpful in rehabilitation of post-operative hip, knee and other lower extremity disabilities. Height of seat easily adjustable for adult or child. Variation in riding effort is simple and instantly controlled with an adjustable resistance roller.

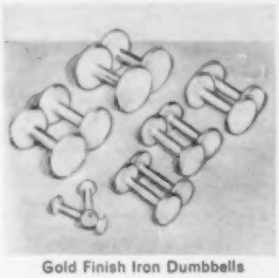
No. 2200 — Rollfast Bicycle Exerciser ..... Each $65.65

Rollfast Bicycle Exerciser

Gold Finish Iron Dumbbells

New, streamlined dumbbells aid progressive muscle development. Comfortable round hand grip. Ends are flat for easier storage. Attractive gold finish.

No. 2352 — 1 lb. size, pr.	$ .66	No. 2352D — 10 lb. size, pr.	$ 6.60
No. 2352A — 3 lb. size, pr.	1.98	No. 2352E — 15 lb. size, pr.	9.90
No. 2352B — 5 lb. size, pr.	3.30	No. 2352F — 20 lb. size, pr.	13.20
No. 2352C — 8 lb. size, pr.	5.28	Minimum order 10 lbs., assorted	



Gold Finish Iron Dumbbells

Exer-Ball

A comfortable hand exercise ball with finger ring. Prevents ball from falling during finger extension. Made of long-lasting soft vinyl sponge.

No. 2699 — Soft
No. 2699A — Medium } Dozen $12.50
No. 2699B — Hard } Dozen in 3 doz. lots 10.00

Big-Grip Exerciser

Develops hand and forearm muscles. Contoured polystyrene grips for secure and comfortable grasp. Available in four "strengths."

No. 2698 — 10 lbs. compression.	Doz.	$18.00
No. 2698A — 15 lbs. compression.	Doz.	18.00
No. 2698B — 30 lbs. compression.	Doz.	18.00
No. 2698C — 60 lbs. compression.	Doz.	18.00
No. 2698D — Set of four, one of each compression		6.40

Exer-Ball | Big-Grip Exerciser | Terry Wrist Exerciser

Terry Wrist Exerciser

Inexpensively priced—perfect for developing arm, wrist, hand and fingers. Compact size provides grip by whole hand or individual fingers. High quality blue steel with comfortable hand grip.

No. 2695 — Terry Wrist Exerciser, 39 lbs. compression.	Dozen	$ 7.80
No. 2695A — Same, but 85 lbs. compression.	Dozen	7.80

Spring-Loaded Dumbbell

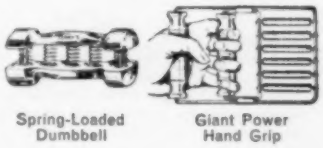
Provides graded resistance for biceps, forearm and wrist. 3-center springs remove easily and offer 15 lbs. compression per spring—maximum 75 lbs. Smooth cast iron. Wt. per pair 5½ lbs.

No. 2696 — Spring-Loaded Dumbbell.	6 prs.	$20.40
	12 prs.	38.40

Giant Power Hand Grip

Offers maximum grip tension—operates smoothly and evenly. Has 6 Giant Power nickel-plated steel springs and 2 non-slip wooden grip handles. Springs easily removable to vary grip tension.

No. 2703 — Giant Power Hand Grip. Dozen $25.00



Spring-Loaded Dumbbell | Giant Power Hand Grip

Order now...

Rehabilitation Products

A Division of American Hospital Supply Corporation

2020 Ridge Avenue, Evanston, Illinois

Regional Sales and Distribution Centers

ATLANTA • CHICAGO • COLUMBUS • DALLAS • KANSAS CITY
LOS ANGELES • MINNEAPOLIS • NEW YORK • SAN FRANCISCO • WASHINGTON

HYDROCOLLATOR

Steam PACK

MOIST HEAT

Now moist heat can be applied conveniently, effectively and with a minimum investment in equipment. No dripping, no wringing, no repeated applications. Each application gives at least 30 minutes effective moist heat. The Steam Pack is merely heated in water, wrapped in a towel, and applied. Standard equipment in leading hospitals and clinics across the nation.

DESCRIPTIVE MATERIAL ON REQUEST

CHATTANOOGA PHARMACAL CO., INC.

CHATTANOOGA 5, TENNESSEE

MASTER UNITS

Four all stainless steel models to meet the various requirements in hospitals, clinics, physicians' offices, and patients' homes. Automatically maintains Steam Packs in water at proper temperature — constantly ready for immediate use. No plumbing used.

D-3 2 Pack

E-1 4 Pack

SS — 6 Pack

M-2 12 Pack Mobile Unit

· for effective, well-tolerated, therapeutic stimulation of muscles and nerves, normally innervated and denervated . . .

PORTABLE *low volt* GENERATOR

incorporating the variable frequency features and continuously adjustable surge rate feature found only in larger Teca generators. Calibrated controls and large meter provide optimum professional results since records of currents may be kept, results may be duplicated, and graded increases in therapy can be given. Select either AC output for most muscle stimulating uses or DC (galvanic) for muscle testing medical galvanism and ion transfer therapy, and stimulating denervated muscle.

TECA MODEL SP2

←on No. 303 stand

Write for SP2 literature and "Notes on Low Volt Therapy"

TECA CORPORATION

80 MAIN STREET · WHITE PLAINS, NEW YORK

YOU CAN DEPEND ON Sierra®

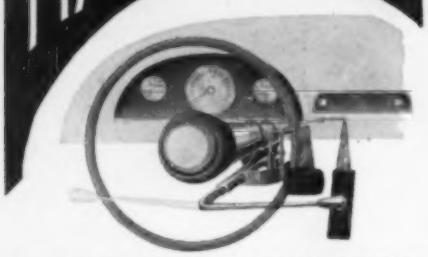
Sierra brings the highest standards of design, years of engineering "know-how" and meticulous attention to detail in the manufacture of prosthetic devices. The Sierra label is your assurance of the finest…on every part you buy… that skill, care and painstaking devotion to quality can produce.

Sierra® ENGINEERING CO.

123 EAST MONTECITO • SIERRA MADRE, CALIFORNIA

TO ASSIST YOU IN REHABILITATING THE AMPUTEE, WRITE FOR FREE TRAINING LESSONS IN USE OF SIERRA PROSTHESIS

HANDI-DRIVE



Enables AMPUTEES TO DRIVE

With EASE and SAFETY

Anyone unable to drive due to loss of hands, arms or legs, rheumatism or arthritis can drive again with the use of this new mechanical hand control for cars.

— Guaranteed —

Approved By

STATE HIGHWAY COMMISSIONS

Write for Information

THE LEVERAGE HAND BRAKE COMPANY

P. O. BOX 853 FARGO, NORTH DAKOTA

GRADUATE PHYSICAL THERAPY TRAINING PROGRAM

Rancho Los Amigos Hospital

Downey, California

Eligibility Requirements: Graduation from an approved curriculum in Physical Therapy.

Beginning Date: Second Monday of September. Application must be filed two months prior to beginning date.

Duration: Three or six months.

Description of Training: Instruction, demonstration, and on-the-job practice in muscle testing, muscle strengthening, prevention and correction of deformities, respiratory rehabilitation, bulbar treatment techniques, and glossopharyngeal breathing. On-the-job practice with both adults and children with various neuromuscular disabilities. Training in functional testing and functional bracing which includes principles of upper extremity orthetics, mobile arm supports and the use of the artificial muscle.

Housing: Rooms and meals available at the Hospital at minimum cost.

Salary: Maintenance salary by the Hospital or scholarships available from National Foundation, Inc.

Address communications to:

PHYSICAL THERAPY INSTRUCTOR
RANCHO LOS AMIGOS HOSPITAL
Downey, California

Information for Contributors

The Physical Therapy Review welcomes original articles of interest to physical therapists throughout the world. Prompt reviewing and processing of papers will be assured if attention is given to the following suggestions.

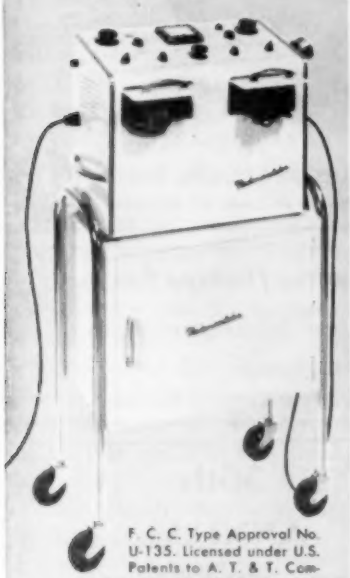
Manuscripts are accepted with the understanding that they have not been published elsewhere. Contributions may be classified as "Feature Articles," "Suggestions from the Field," or "Case Reports." Feature articles are longer and deal rather extensively with the subject presented; suggestions from the field are brief and describe the instrument or device presented; case reports are short and concerned with discussion of a treatment for a specific type of disease or disability. All material should be presented in a clear, logical, and impersonal discourse.

Submit the original *manuscript* and one carbon copy (keep one carbon copy for your files). All written material should be typed, double-spaced with minimum margins of 1 inch on 8½ x 11 inch opaque white paper. Legends for illustrations, tables, references, and acknowledgments should be placed each on a separate sheet. When citing another author's work, a superscript numeral must appear in the body of the manuscript. The *references* must be accurate and numbered in the order in which they appear in the text. Include the name of each author, title of the article, name of periodical, volume number, inclusive pages, and date.

Illustrations should be protected by cardboard and the name of author and figure number written with soft pencil on the back. If *photographs* are used, sharp black and white prints on glossy paper are required, avoid distracting backgrounds. Graphs, charts, and line figures drawn with india ink on heavy white paper are necessary for good reproductions. Letters and figures should be large enough so that they will be readable when reduced for publication. Tables are reproduced more legibly when the carbon is reversed and typing occurs on both sides of the paper.

Address manuscripts to:

PHYSICAL THERAPY REVIEW
1790 Broadway—Room 310
New York 19, New York



F. C. C. Type Approval No. U-135. Licensed under U.S. Patents to A. T. & T. Company and Western Electric Company for Therapeutic Generators.
U.S. Patent No. 2,830,578 covering a combination of Ultra-Sound and Electrical Muscle Stimulation through a single "Sound Applicator"

MEDCO WILL BE HAPPY TO PROVIDE REPRINTS OF "MANAGEMENT OF MYOFASCIAL PAIN SYNDROMES IN GENERAL PRACTICE" BY JOHN J. BONICA, M.D.

Myofascial Pain Syndromes . . . A Common Complaint Encountered by Physicians

The high incidence of myofascial syndromes are widely recognized. These include stiffness, limitation of motion, tremors, weakness and manifestations of autonomic nervous system dysfunction. The pain pattern arising from the stimulation of a "trigger point" may be local in distribution, or it may radiate or be referred to a site at some considerable distance from the point of stimulation.

The combination of electrical muscle stimulation and ultra-sound has been found practical as both forms of therapy can be simultaneously blended through the single sound head. This combination is offered only in the Medco-Sonlator which permits the operator to employ the instrument to locate the "trigger area" with electronic palpation and to apply the combination therapy.

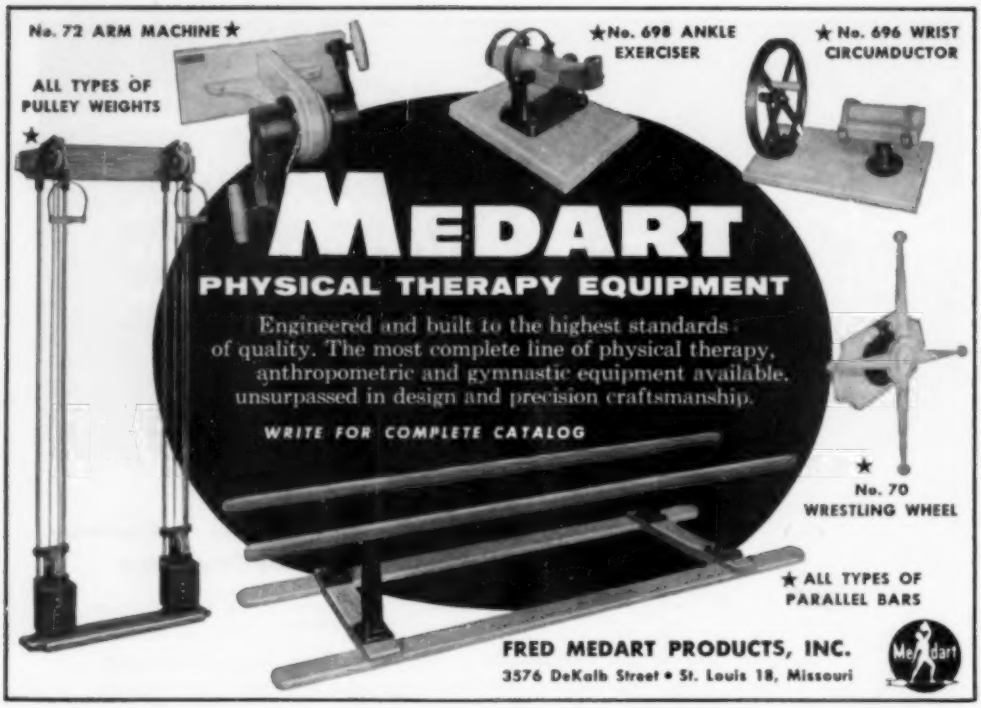
MEDCO ELECTRONICS COMPANY, INC.
Division / Medco Products Co., Inc.
3607 E. ADMIRAL PL. / P.O. Box 3275 / TULSA, OKLA.

☐ Send a copy of Bonica Reprint Department P
☐ I would like office demonstration of the Medco-Sonlator

NAME.....

ADDRESS.....

CITY..... STATE.....


No. 72 ARM MACHINE ★
ALL TYPES OF PULLEY WEIGHTS
★
★No. 698 ANKLE EXERCISER
★ No. 696 WRIST CIRCUMDUCTOR
MEDART
PHYSICAL THERAPY EQUIPMENT
Engineered and built to the highest standards of quality. The most complete line of physical therapy, anthropometric and gymnastic equipment available, unsurpassed in design and precision craftsmanship.
WRITE FOR COMPLETE CATALOG
★
No. 70 WRESTLING WHEEL
★ ALL TYPES OF PARALLEL BARS
FRED MEDART PRODUCTS, INC.
3576 DeKalb Street • St. Louis 18, Missouri

AMICK Suspension

AMBULATOR for the

rehabilitation of patients suffering from Polio, Strokes, Cerebral Palsy, Spina Bifida, Encephalitis, hip fractures, amputations and Multiple Sclerosis.

Eliminates Fear of Falling
Promotes Patient Confidence
Longer Treatment Periods Possible
Patient Progress Hastened
Constant Supervision Unnecessary
Adaptable and Adjustable

Support straps fit any patient. Works well in or out of parallel bars. May function either as a support or safety device. Excellent for neck traction or pulley exercise. Easily adapted for home use.

LOW PRICE—Write for complete information.

AMICK AMBULATOR Mfg. Co.
STANTON, Nebr.

Physical Therapy Review

New Subscription Rates

Nonmember subscriptions	$7.00
Foreign subscriptions (Including Canada)	8.00

36th
ANNUAL
CONFERENCE

AMERICAN PHYSICAL THERAPY ASSOCIATION

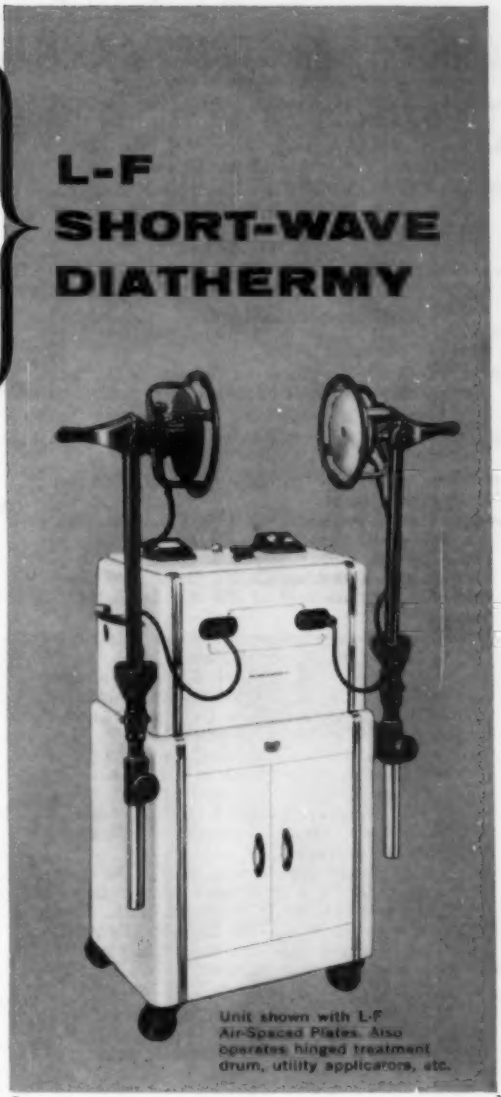
June 21-26, 1959

HOTEL LEAMINGTON
Minneapolis, Minnesota

SURE, SAFE, EFFECTIVE

FOR EVERY APPLICATION WHERE THERMAL THERAPY IS INDICATED . . .

L-F SHORT-WAVE DIATHERMY



Unit shown with L-F Air-Spaced Plates. Also operates hinged treatment drum, utility applicators, etc.

This unit is unsurpassed in effective long-path treatments, as well as for localized and diffused treatment applications. Whether the condition of the patient requires mild, moderate or greatest tolerable heat, an L-F Short-Wave Diathermy provides all the flexibility and power necessary.

Exclusive L-F Air-Spaced Plates are positioned effortlessly . . . and they *stay* in the proper position. The L-F Unit also operates a hinged treatment drum or utility applicator.

Consider the L-F Short-Wave Diathermy . . . its safety, convenience and efficiency make it extremely valuable in treating patients with the best in tried and proved therapy.

Send coupon below for complete descriptive literature.

L-F Another Quality Product of Liebel-Flarsheim Company

DIVISION OF

Ritter

COMPANY, INC.

ROCHESTER, NEW YORK

Medical-Hospital Division, Dept. 7554
Ritter Company, Inc.
Rochester 3, New York

Please send without obligation your latest 6-page brochure describing L-F Short-Wave Diathermy Units.

Name .....

Address .....

City-State .....

State Board Examinations—1959

Alaska*†: Apply to Territorial Board of Medical Examiners, 188 South Franklin, Juneau.

Arizona*: Apply to June D. Walker, Sec., 1838 N. 37th Place, Phoenix.

Arkansas*: Apply to Joe Verser, M.D., Sec., Board of Physical Therapy Examiners, Harrisburg.

California*†: Apply to State Board of Medical Examiners, 1020 N St., Room 530, Sacramento 14. Examinations held in Los Angeles and San Francisco. SPECIFY REGISTRATION FORM

Connecticut*†: Apply to Ruby C. Oscarson, Sec., 26 Palmer's Hill Rd., Stamford. Examinations held in Hartford.

Delaware*†: Apply to State Examining Board of Physical Therapists, Dover.

Florida*†: Apply to Homer L. Pearson, M.D., Sec., State Board of Medical Examiners, 901 N.W. 17th St., Miami 36.

Georgia*: Apply to C. L. Clifton, Joint Sec., State Examining Boards, 224 State Capitol, Atlanta.

Hawaii*†: Apply to Department of Health, Territory of Hawaii, Honolulu.

Illinois: Annual examination, third Friday of October. File applications 15 days in advance. Apply to Judge Vera M. Binks, Director, Department of Registration and Education, Capitol Building, Springfield. Examinations held at 160 No. La Salle St., Chicago.

Indiana: Annual examination, Mid-June. File applications by May 15. Apply to Ruth V. Kirk, Exec. Sec., State Board of Medical Registration and Examination, 538 K. of P. Building, Indianapolis 4. Examinations held at Indiana University Medical School, 1100 W. Michigan, Indianapolis.

Kentucky†: Semiannual examinations, April and October. File application by March 1 or September 1. Apply to Agnes Shehan, Sec., State Board of Physical Therapy, Kentucky Crippled Children Association, 982 Eastern Parkway, Louisville 17. Examinations held in Frankfort.

Maine: Thrice yearly examinations, March 10, July 14, November 10. File application 10 days in advance. Apply to Adam P. Leighton, M.D., Sec., Medical Examining Board, 142 High St., Portland. March and November examinations held at Portland City Hall, Portland; July examination held at State House, Representative Chambers, Augusta.

Maryland*: Apply to State Board of Physical Therapy Examiners, 2411 No. Charles St., Baltimore 18.

Massachusetts†: Semiannual examinations, April 14 and October 13. File application by March 31 or September 29. Apply to Board of Registration in Medicine, State House, Boston 33. Examinations held at State House, Boston.

Minnesota*: Apply to State Board of Medical Examiners, 230 Lowry Medical Arts Building, St. Paul 2.

Nebraska*: Apply to Husted K. Watson, Dir., Bureau of Examining Boards, Room 1009, State Capitol Building, Lincoln.

Nevada*†: Semiannual examinations. Apply to Margaret Heidrick, 506 Humboldt St., Reno. Examinations held in Reno or Las Vegas.

New Hampshire*†: Apply to Edward W. Colby, M.D., Sec., Board of Registration in Medicine, 61 So. Spring St., Concord. Examinations held at State Health Building, 61 So. Spring St., Concord.

New Mexico*: Apply to Registrar, Physical Therapists Licensing Board, Box 2206, Santa Fe.

New York: Semiannual examinations; June 23-24, December 8-9. File applications at least 30 days in advance. Graduates of registered curriculum apply to John W. Paige, Chief, Bureau of Professional Examinations and Registrations, 23 South Pearl St., Albany 7; graduates of nonregistered curriculum apply to Robert C. Killough, Jr., Assistant Commissioner for Professional Education, 23 So. Pearl St., Albany 7. Examinations are held in Syracuse and New York City.

North Carolina*†: Next Examination November 24. Apply to Edith M. Vail, Sec., Dept. of Physical Therapy, N. C. Baptist Hospital, Winston-Salem. Examinations held at University Testing Center, School of Education, University of North Carolina, Chapel Hill.

Oklahoma*: Apply to Lucy Haidek, Exec. Sec., Board of Medical Examiners, Braniff Building, Oklahoma City. Examinations held at Board of Medical Examiners, Braniff Building, Oklahoma City.

Pennsylvania†: Semiannual examinations, January and July. File application December 15 or June 1. Apply to Marguerite Glass Steiner, Sec., State Board of Medical Education and Licensure, Box 911, Harrisburg. January examination held in Philadelphia; July examinations held in Philadelphia and Pittsburgh.

South Carolina*†: Apply to Ruth S. Linley, Sec., State Board of Physical Therapy Examiners, 319 Walker St., Columbia.

South Dakota*†: Apply to John C. Foster, Exec. Sec., State Board of Medical and Osteopathic Examiners, 300 First National Bank Building, Sioux Falls.

Tennessee†: Annual examination, second Monday in June. File application one month in advance. Apply to State Board of Medical Examiners, 1635 Exchange Building, Memphis. Examinations held in Nashville.

Vermont*†: Apply to Sophie Myers, Sec., Board of Physical Therapy Registration, Degoesbriand Memorial Hospital, Burlington.

Virginia: Semiannual examinations, February and September. Apply to State Board of Medical Examiners, 631 First St., S.W., Roanoke. Examinations held at Medical College of Virginia, Richmond.

Washington†: Annual examination, May. File applications by April 1. Apply to Professional Division, Department of Licenses, Olympia. Examinations held in Seattle.

Wisconsin*: Thrice yearly examinations, April 2-3, Mid-September and at discretion of Examining Committee. File applications at least two weeks in advance. Apply to Emma Zitzer, Sec., Physical Therapy Examining Committee, 207 North Brooks St., Madison 5. April examination held in Milwaukee; September examination held in Madison. Third examination to be scheduled.

---

* Information regarding examination dates and/or place of examination will be provided upon receipt of application.

† Examination provided by Professional Examination Service, American Public Health Association, 1790 Broadway, New York 19, New York.

After Mastectomy NATURAL APPEARANCE RESTORED, POSTURE AND BODY BALANCE IMPROVED IN A *Spencer*

Spencer's Individual Designing Service enables you to prescribe for the total support requirements of the post-mastectomy patient.

This patient's breast form was created especially for her in the precise size and shape* needed to restore natural appearance.

Her brassiere (with pocket scientifically designed to hold form in place) was made to her *natural* measurements.

A body support was designed individually to . . .

- Support a distressed lumbar curve and reduce lordosis.
- Provide healthful abdominal elevation.
- Help maintain body balance and guard against the postural abnormalities that frequently follow breast surgery.

*Spencer forms may be designed to any shape or thickness to compensate for the most radical surgical procedures.

Spencer's Individual Designing Service is available to you through Corsetieres specially trained to help you help your patients.

There is a need in many areas for qualified people interested in being trained for this work. Maybe you know of someone.

SPENCER®

individually designed supports for women, men and children

SPENCER, INCORPORATED

31 Ellsworth Ave., New Haven 7, Conn.

Canada: Spencer, Ltd., Rock Island, Quebec

England: Spencer, Ltd., Banbury, Oxon

☐ Send new booklet "Spencer Supports in Modern Therapy."

☐ Send information about opportunity.

Name _____

Address _____

_____

6-59

Index to Current Literature

AMPUTEES

Functional Training of the Bilateral Above-Knee Amputee E. F. Cicenia, C. F. Springer, P. C. Hauser and A. G. Midwood, Am. J. Phys. M., 38: 9-23, February 1959

CIRCULATION

Basic Concepts About Shoulder-Arm Syndrome. John W. Pender, J. Am. M. Ass., 169: 795-797, Feb. 21, 1959

Peripheral Vascular Diseases. Robert R Linton, N. England J. M., 260: 272-278, Feb. 5, 1959 and 322-328, Feb. 12, 1959

DERMATOLOGY

Symposium on Manifestations of Scleroderma. (6 papers) Proc. Mayo Clin., 34: 53-82, Feb. 4, 1959

Treatment of Scleroderma. Chris J. D. Zarafonetis, Ann. Int. M., 50: 343-365, February 1959

ELECTRODIAGNOSIS

Clinical Application of a Transistorized Survey Electromyograph. Y. T. Oester, T. Fields and G. T. Anast, Am. J. Phys. M., 38: 5-8, February 1959

GERIATRICS

The Mechanisms of Stress and the Forces of Senescence. Joseph T. Freeman, J. Am. Geriat. Soc., 7: 71-78, January 1959

HYDROTHERAPY

Brine Bath Treatments for Decubitus Ulcers. R. H. Nyquist, J. Am. M. Ass., 169: 927-932, Feb. 28, 1959

NEUROANATOMY

Motor Unit Territory in Different Human Muscles. Fritz Buchthal, Francesco Ermino and Poul Rosenfalck, Acta physiol. scand., 45: 72-87, January 1959

The Vascular Anatomy of the Median Nerve in the Forearm and Hand. Michael J. Blunt, J. Anat. Lond., 93: 15-21, January 1959

NEUROLOGY

Chronic Encephalopathy Following Minor Head Injury. John Denst, *et al.*, A. M. A. Arch. Path., 67: 134-139, February 1959

Cortical Sensory Defects Causing Disability. Francis M. Forster and Charles D. Shields, Arch. Phys. M., 40: 56-61, February 1959

Isolated Paralysis of the Serratus Anterior Muscle. Thomas Horwitz, Orthopedics, 1: 100-103, March 1959

NEUROPHYSIOLOGY

Biopsy Study of the Pathology of the Lower Motor Neurone. A. L. Woolf, Am. J. Phys. M., 38: 26-35, February 1959

Collateral Reinnervation in Partially Denervated Muscles. H. Hoffman, Am. J. Phys. M., 38: 36-39, February 1959

Effects of Acetylcholine on the Motor End-Plate. S. Thesleff, Am. J. Phys. M., 38: 40-41, February 1959

Effects of Muscle Stretch on Excitability of Contralateral Motoneurones. E. R. Perl, J. Physiol., Lond., 145: 193-203, Jan. 28, 1959

Excitability and Functional Organization within a Peripheral Tactile Unit. Ulf F. Lindblom, Acta physiol. scand., 44: Supplement 153, 1958

Hidden Neurologic Mechanism in Motor Function Restitution. Experiments with Cortical Lesions in Monkeys. A. M. Lassek and Sara L. Emery, Neurology, 9: 107-110, February 1959

Mechanisms of Transmission in the Central Nervous System. W. D. M. Paton, Anaesthesia, Lond., 14: 3-27, January 1959

Pattern of Excitation and Inhibition Produced by Injection of Substances in the Cerebral Ventricle of the Conscious Cat. W. Feldberg, Acta physiol pharm neerl., 7: 425-440, December 1958

Tendon Afferents in Autogenetic Inhibition in Man. B. Libet, B. Feinstein and E. W. Wright, Electroencephalography, Montreal, 11: 129-140, February 1959

ORTHOPEDICS

Foot Problems. J. Paul Harvey, Jr., N. York State J. M., 59: 851-858, March 1, 1959

Iatrogenic Stiff Shoulders. Robert G. Thompson and Edward L. Compere, J. Am. M. Ass., 169: 945-946, Feb. 28, 1959

Intramedullary Nailing of Long Bone Fractures. Richard A. Mayo, Am. J. Nurs., 59: 236-239, February 1959

Management of the Osteoporosis in the Elderly Patient. Part I. Irvin Stein and Martin L. Beller, Geriatrics, 14: 99-110, February 1959

Nursing Care after Intramedullary Nailing. Joanne M. Hughs, Am. J. Nurs., 59: 239-240, February 1959

Physiological Treatment for Fractures of the Metacarpals and Phalanges. Preston Burnham, J. Am. M. Ass., 169: 663-666, Feb. 14, 1959

Recent Advances in the Care of Fractures in the Aged. Edgar M. Bick, N. York State J. M., 59: 461-465, Feb. 1, 1959

Repair of Tendon Injuries in the Hand. Preston J. Burnham, A. M. A. Arch. Surg., 78: 316-321, February 1959

Suspension Cast for Acromioclavicular Separations and Clavicular Fractures. S. G. Stubbins and W. H. McGaw, J. Am. M. Ass., 169: 672-675, Feb. 14, 1959

Whiplash Injury of the Cervical Spine I. F. O. McGehee, Orthopedics, 1: 105-108, March 1959

Whiplash Injury of the Cervical Spine II. R. F. Hall, R. M. Stuck and O. E. K. Hall, Orthopedics, 1: 109-111, 116, March 1959

PAIN

Pain in the Shoulder and Upper Extremity. E. H. Morgan J. Am. M. Ass., 169: 804-809, Feb. 21, 1959

POLIOMYELITIS

Poliomyelitis Problems in the Post-vaccine Era. Harris D. Riley, Jr., South. M. J., 52: 127-135, February 1959

PHYSIOLOGY

The Effect of Load Carriage on Normal Standing in Man. D. P. Thomas, J. Anat. Lond., 93: 75-86, January 1959

The Physiological Basis of Psychomatic Disturbances. J. J. Groen, Acta physiol pharm neerl., 7: 500-510, December 1958

REHABILITATION

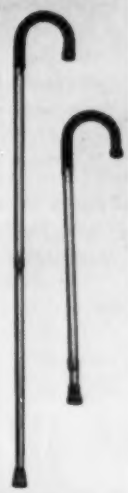
Rehabilitation of the Flyer Following Thoracotomy. F.

(continued on page 409)

FASCOLE
ADJUSTABLE CANE

TELESCOPES FROM 22" to 38"

Tnis amazingly lightweight anodized cane from Fascole provides the utmost security for the handicapped and convalescent. It telescopes so easily from 22" to 38" that patients adjust it themselves. Extra stability is guaranteed in this cane's strong internal and external friction locks that hold up to 500 lbs. of pressure. To prevent skidding, it has a guardian brand tip . . . and, for a firm grip, a comfortable rubber sleeve on crook. Lower section ⅝"; top ¾".



ADJUSTABLE CANE **$6.95**

Institutional discounts offered on quantity orders.

One of many products to be featured in our forthcoming 80 page catalog. For your FREE copy write—Dept. PT.

FASCOLE CORP. 229 4th Ave. N. Y. 3, N. Y.

FASCOLE *Shopping Center for the Physically Disabled*

Georgia Warm Springs Foundation

GRADUATE COURSE

Physical Therapy and Occupational Therapy

This course is open to graduates of approved schools of physical and occupational therapy. Such graduates must be members of the American Physical Therapy Association and/or American Registry of Physical Therapists, or American Occupational Therapy Association.

ENTRANCE DATES: First Monday in January, April and October.

COURSE I—Emphasis on care of convalescent neuro-muscular disease with intensive training in functional anatomy, muscle testing, muscle reeducation and use of supportive and assistive apparatus. This course is complete in itself.

COURSE II—Three months duration with Course I prerequisite. Emphasis on care of severe chronic physical handicaps with intensive training in resumption of functional activity and use of adaptive apparatus.

IN-SERVICE TRAINING PROGRAM—Fifteen months duration at salary of $225 per month plus full maintenance, increasing to $250 per month at the completion of nine months. This program includes training in Course I and II.

TUITION: None. Maintenance is $100 per month. For scholarship to cover transportation and maintenance for Courses I and II, contact the National Foundation, 301 East 42nd Street, New York 17, New York. (Scholarships require two years of experience.)

For further information contact:

Robert L. Bennett, M.D., Medical Director
Georgia Warm Springs Foundation
Warm Springs, Georgia

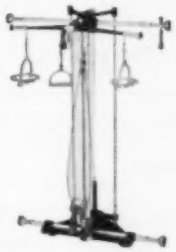
Elgin PROGRESSIVE RESISTANCE EXERCISE EQUIPMENT

Elgin Exercise Unit Model No. A-1500

. . . especially designed for the administration of over 100 therapeutic exercises!

It has been proven that exercise therapy must be accurately controlled if the desired end results are to be obtained . . . Elgin, the original designers and manufacturers of Progressive Resistance Equipment, offers the only complete line of exercise equipment designed to meet these requirements. The Elgin line has been developed, in a scientific manner, to give Doctors and Therapists the correct clinical tools with which to properly administer exercise therapy to both surgical and non-surgical patients.

It provides a wide exercise range, from simple functional exercises to the most highly definitive focal exercises. This equipment also provides a means for an effective and efficient out-patient clinic for patients requiring therapy. An Elgin sales consultant would appreciate the opportunity of assisting you in planning for the inclusion of Progressive Resistance Exercise Equipment in your physical therapy department. Write today for complete information.



ELGIN EXERCISE UNIT
Model No. AB-150

ELGIN LEG EXERCISE
(Ankle) Model No. LE-125

Write today for information on the complete line of Elgin Exercise Accessory Equipment and Therapy Techniques, request Catalog 200.

Elgin EXERCISE APPLIANCE CO.

P. O. BOX 132 • ELGIN, ILLINOIS

EQUIPMENT SUGGESTIONS
***for the* BUSY THERAPIST**

THERE IS NO COMPROMISE WITH QUALITY

Chronowave Stimulator—the original electronic stimulator

Chronosonic Ultrasound—with stationary and orificial applicators

Lindquist Short Wave—A new light weight portable.

Mobitrac—cervical and lumbar rhythmic traction

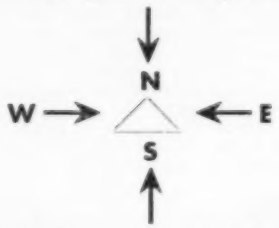
Call or write for details
Low down payments—Easy terms—Trade-ins accepted

R. J. Lindquist Company
2419 W. 9th Street—Los Angeles, California
DUnkirk 2-1268

37th
ANNUAL
CONFERENCE

**American
Physical Therapy
Association**

**June 26—July 2, 1960
Penn-Sheraton Hotel
Pittsburgh, Pennsylvania**



1960 Points to Pittsburgh

List of Advertisers

American Hospital Supply Corp. (Rehabilitation Products) 369
Amick Ambulator Co. 374
Burdick Corporation ..... inside back cover
California Medical Personnel Services 366
S. H. Camp and Company 363
Chattanooga Pharmacal Co., Inc. 370
Chicago Wesley Memorial Hospital 367
C. D. Denison Orthopaedic Appliance Corp. 362
Elgin Exercise Appliance Co. 379
Everest & Jennings, Inc. 365
Fascole Corp. 379
Georgia Warm Springs 379
Ilie Electric Corporation 366
LaBerne Manufacturing Company 368
Leverage Hand Brake Co. 372
R. J. Lindquist Co. 380
Lumex, Inc. 382
Fred Medart Products, Inc. 374
Medco Electronics Company 373
Pace Orthopedic Table 381
J. A. Preston Corp. ..... inside front cover, page 361, and back cover
Rabinow Insurance Agency, Inc. 381
Rancho Los Amigos Hospital 372
Ritter (Liebel-Flarsheim) 375
Sierra Engineering Co. 371
Spencer, Inc. 377
Teca Corporation 370
Whitehall Electro Medical Co., Inc. 381

**man
conquers
mountains**

And, some day, man
will also conquer cancer.
With **your** help.

**Guard your family . . .
fight cancer with
a checkup and a check**

AMERICAN CANCER SOCIETY

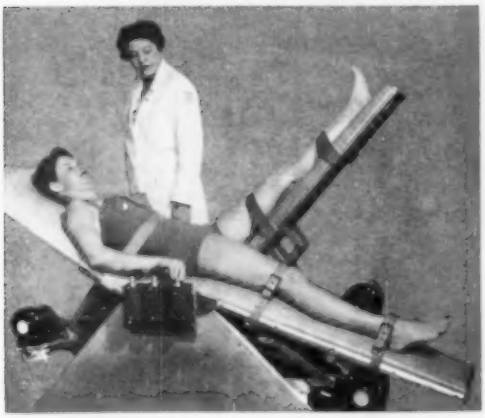
WHITEHALL hydrotherapy EQUIPMENT

- For the Modern Physical Therapy Department make Whitehall your choice... the latest advancements in hydrotherapy with simplified design for improved operation and lower costs.

Send for descriptive literature | **The WHITEHALL ELECTRO MEDICAL CO., Inc.**
19 Wall Street • Passaic, New Jersey

• ARM/LEG/HIP WHIRLPOOL • FULL BODY IMMERSION TANK • THERAPEUTIC POOL

PACE ORTHOPEDIC TABLE



Is highly recommended for gentle stretching of patients with cerebral palsy, poliomyelitis, arthritis, muscular dystrophy, multiple sclerosis, low back strain, scoliosis.

Invaluable in a busy physical therapy department since the PACE TABLE may be easily controlled.

Aluminum construction in three movable sections; elevation of 97°, lowers to 20° below level; electrically operated. Table size: 80 x 24 x 27.

Demonstrations given in the U. S. and Canada. For details write/call: Dorothy P. Pace, **PACE ORTHOPEDIC TABLE**, 42 Middle St., Portsmouth, New Hampshire. GE 6-0614.

PROFESSIONAL LIABILITY INSURANCE

APTA Master Policy

Broadest Coverage . . . Lowest Cost
$15,000/$45,000 . . . . $25.00 Annually

Annual Premium Due Date, August 1, 1959
(New or Renewal)

HIGHER LIMITS AVAILABLE

Amount	*Annual Premium*
$ 25,000/$ 75,000	$ 50.00
$ 50,000/$150,000	$ 60.00
$100,000/$300,000	$110.00

Limited to APTA Members

Approved by
American Physical Therapy Association

Return the application promptly or send your name, address, age, and name and address of employer with check made payable to

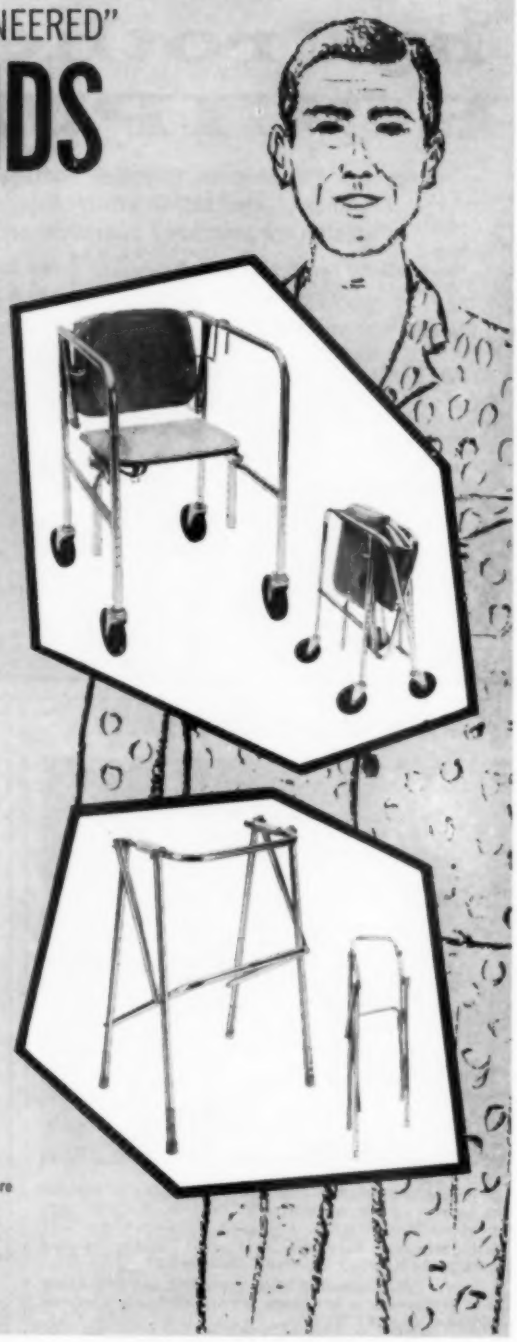
Rabinow Insurance Agency, Inc.
308 Main Street **New Britain, Conn.**

LUMEX "QUALITY ENGINEERED"

PATIENT AIDS

Featuring

- **GREATEST PATIENT SAFETY**
- **PORTABILITY**
- **ECONOMY**



INVALID WALKER-CHAIRS

- GREATER PATIENT COMFORT — Foam-Filled Upholstered Back and Extra Large Seat.
- EASILY MANEUVERABLE — FOLDS FLAT — Compact Construction.
- COMPLETELY ADJUSTABLE — Push-Button Adjustments Suit Individual Requirements Of Every Patient.
- ADDED SAFETY — Positive Push-Button Spring Lock For Open Position.
- SUPERIOR CONSTRUCTION — Welded Chrome-Plated Steel, 5" Ball-Bearing Casters With Thread Guards.

Cat. **No. 610 — FOLDING WALKER-CHAIR** — Adjustable Short Model **$75.00**

No. 612 — ADJUSTABLE CRUTCH ATTACHMENTS — 1 Pair **$15.00**

PUSH-BUTTON FOLDING INVALID WALKER

(Pat. Pending)

Lightweight — only 5 lbs.
Push-Button Folding enables unit to fold flat for storage or transportation. Non-tip construction is as strong and sturdy as non-folding models. 1" Polished Aluminum Tubing, and white plastic hand grips and reinforced leg tips.

Cat. **No. 605 — PUSH-BUTTON FOLDING INVALID WALKER**—Non-Adjustable Model—35" High **$16.50**

No. 608 — PUSH-BUTTON FOLDING INVALID WALKER—Adjustable 33" to 37" High..... **$19.50**

No. 607 — PUSH-BUTTON FOLDING INVALID WALKER—Child Height—Adjustable 27" to 31" High **$18.50**

INVALID WALKERS ALSO AVAILABLE IN NON-FOLDING MODELS.

For further information and illustrated literature about our complete **PATIENT AIDS** line, please write to:

GENERAL MEDAL EQUIPMENT CORPORATION Division of **LUMEX INC.** VALLEY STREAM, N. Y.

The Physical Therapy Review

Official Publication of The American Physical Therapy Association

Evaluation of Equanil® as Adjunct to Physical Therapy for Children with Severe Cerebral Palsy

Abraham Gelperin, M.D., D.P.H., M.S.H.A., and Otto Payton, B,S,

The management of the child with cerebral palsy in an institution for the mentally retarded is based upon an assessment of both physical and mental status. Physical rehabilitation and emotional tranquilization are reported to be aided by the utilization of muscle relaxants or ataraxics; [1, 2, 3, 4, 5, 6, 7] however, the therapeutic effects were present primarily during the period of drug administration. The pharmaceutical administered was in addition to basic psychotherapy and/or physical therapy. Meprobamate has been the drug usually employed. Dosages varied from 20 mg./kg. to 50 mg./kg., or 100 mg. t.i.d. to 800 mg. q.6.h. Durations of therapy also varied from 2 weeks to 80 weeks in the various investigations. Only one investigator employed a placebo,[2] alternating this "control" with the tranquilizer in the same patient. One study obtained no satisfactory effects from Meprobamate.[8]

The patients observed in the reported studies were in the educable or higher intelligence groups. Nevertheless, real benefit had been observed in the trainable intelligence category.[9] It is the group with measured intelligence levels below 45, however, that poses the most difficult problem in the institution. This segment of the cerebral palsy population has, in the main, the most severe physical disabilities, thus requiring more attendant and nursing services. Physical therapy in cerebral palsy is distressingly slow in attaining demonstrable improvement such as self feeding, or walking, or even rolling over, especially among the most severely involved.

The experience gained during such a two year program in Dixon State School, a 5,000 bed facility for the mentally retarded in Dixon, Illinois, emphasized the necessity of trying an adjuvant. Therefore, a study was initiated using Equanil ®* as a possible adjunct to physical rehabilitation. In addition, a placebo was utilized for one half the study group in order to reasonably evaluate the possible efficacy of Meprobamate.

Twenty-eight patients from 3 to 18 years of age were selected from the child cerebral palsy population in the institution and divided into two groups. Two groups were as nearly equal as possible. The pairing of children and assignment to one group or the other was done through the careful clinical evaluation of each child, considering the degree of involvement, the child's age and mental development. In none of the children was emotional disturbance a major factor. Each group included 4 athetoids, 3 severe, 1 moderate; and 10 spastics, 9 severe, 1 moderate. Each group of children with spasticity included 8 quadri-

Dr. Gelperin is Director of Health and Hospitals, Kansas City, Missouri; Mr. Payton is Chief of Physical Therapy, Elkhart Indiana Rehabilitation Institute. At the time of this study, Dr. Gelperin was Assistant Superintendent, Dixon State School, Dixon, Illinois.

* Equanil and the placebo were supplied through the courtesy of Wyeth Laboratories, Philadelphia.

plegics and 2 paraplegics. Each had had some physical therapy in the cottage residences, to no avail. Concomitant with the initiation of the study was the opening of a new, fully equipped physical therapy department.

During the initial evaluation period both active and passive joint range of motion tests were made and recorded on appropriate forms†. Manual muscle tests were recorded as far as physical limitations would allow. These tests were administered by the chief physical therapist. The nurses and attendants in charge of the cottages were considered to have the best opportunity to observe and know the daily habits and abilities of the children so they were instructed in the method of taking and recording activities of daily living tests†. All evaluations and tests were repeated at the end of the project. While the experiment was in progress, conferences were held every two weeks in the physical medicine department, at which time the progress of each child was discussed. The senior author personally prepared and distributed to the cottages bottles of medicine which were identical in appearance except for the name of the child for whom that bottle was intended. Only he knew who was receiving the Equanil and who received the placebo. Dosages were based on body weight. For purposes of simplification, dosage was either 1 tablet (400 mg.) twice a day or 1 tablet three times a day for both study and control groups, 40 pounds being the dividing weight. This dosage was later increased, as will be explained later. Table I gives the basic data of age, weight, diagnosis, I.Q., and drug dosages. The letters E and P after the numbers identify the Equanil and Placebo groups respectively.

An attempt was made to see each child each day, five days a week, in physical therapy. This therapy was supported in the cottages by an enriched diet and, where practical, by some extra attention with regard to training in self care. Each treatment in the physical therapy department lasted at least 1 hour, and included hydrotherapy, specific and general exercises in that order. Each child received at the beginning of each treatment a 15-20 minute warm bath. Most of these were given in a Hubbard tank type apparatus without mechanical agitation. Each child was encouraged to relax while in the tub. In some cases where relaxation was more readily achieved, under water exercises were added. On several occasions when the hot water supply failed, it was noted that over half of the children were definitely less responsive to the exercise routines, not having had the preceding hydrotherapy. After the bath each child was given specific exercises which consisted of passive, active and resistive range of motion exercises, conscious relaxation with motion from the relaxed position, and for some children patterned movement and specific muscle education were included[10, 11, 12]. The emphasis was on functional motions such as reach and grasp for the upper extremities and reciprocal flexion-extension for the lower extremities. This part of the program also included exercises for head balance, sitting or standing balance, depending on the degree of development of the child.[13] The day's program ended, wherever feasible, with general exercise routines; for example, rolling or crawling on the mats, walking in the parallel bars, riding tricycles, playing hand ball, and daily living activities such as drinking from a glass, and eating with the fingers. Some of this general work was done by supervised volunteers so that the therapists could have more time for the specific exercises.

Two and one-half months after the project began, a preliminary report was made. No difference could be seen between the two groups that was unmistakably attributable to the "specific" medication, although in one or two children there were some signs of a new influence at work. At this time further data on Equanil dosage was made available to us, and the dosages were increased. All of the patients receiving 400 mg. three times a day were changed to 800 mg. t.i.d. The patients receiving 400 mg. twice a day were changed to 600 mg. morning and evening, and 400 mg. at noon. There was a concomitant increase in the number of tablets given to the control group as well. The day after this increase was made, 11 of the children in Group I (later identified as the Equanil group) showed an appreciable increase in relaxation and several of them were drowsy. The physical therapy personnel did not know that this increase had been ordered until after they had seen the result and reported it, so there was no element of "seeing what was expected" when Group I suddenly became more relaxed. Two weeks later it was noted that the drowsiness had disappeared in most cases, but that the relaxation continued. The three exceptions are discussed in the summary.

The experiment continued for a total of nine months. At the end of that time, the tests were repeated as at the beginning of the project, and all medication was then withdrawn. The leucocyte picture did not change in these patients during the period of medication. The children were

† Obtained through the courtesy of the Veterans Administration.

TABLE I

DIAGNOSIS AND TREATMENT REGIMEN OF CEREBRAL PALSY CHILDREN GIVEN EQUANIL® OR A PLACEBO AND CONCOMITANT PHYSICAL THERAPY

No.	Initials	Age	Weight	Diagnosis	IQ	Initial Rx 2½ Mo.	Final Rx 6½ Mo.
1E	TM	13-10	50	Athetoid, Severe	6	400 mg t.i.d.	800 mg t.i.d.
2E	JT	7-10	51	Athetoid, Moderate	40	400 mg t.i.d.	800 mg t.i.d.
3E	CY	14- 5	60½	Athetoid, Severe	19	400 mg t.i.d.	800 mg t.i.d.
4E	WB	14- 7	66½	Athetoid, Severe	14	400 mg t.i.d.	800 mg t.i.d.
5E	FM	18- 9	73½	Spastic Quadriplegia, Severe	12	400 mg t.i.d.	800 mg t.i.d.
6E	RH	14- 6		Spastic Quadriplegia, Severe	31	400 mg t.i.d.	800 mg t.i.d.
7E	RP	10- 3	62½	Spastic Paraplegia, Severe	23	400 mg t.i.d.	800 mg t.i.d.
8E	CL	10- 9	50	Spastic Quadriplegia, Severe	2	400 mg t.i.d.	800 mg t.i.d.
9E	AS	5-11	35	Spastic Quadriplegia, Severe	8	400 mg b.i.d.	600-400-600 mg
10E	PA	8- 6	29½	Spastic Quadriplegia, Severe	2	400 mg b.i.d.	600-400-600 mg
11E	BC	5- 9	36¼	Spastic Paraplegia, Moderate	17	400 mg b.i.d.	600-400-600 mg
12E	GW	8- 1	28	Spastic Quadriplegia, Severe	4	400 mg b.i.d.	600-400-600 mg
13E	WW	2- 9	19-3/4	Spastic Quadriplegia, Severe	4	400 mg b.i.d.	600-400-600 mg
14E	ER	4- 9	29½	Spastic Quadriplegia, Severe	6	400 mg b.i.d.	600-400-600 mg
1P	WH	13- 9	47	Athetoid, Severe	7	2 Placebos t.i.d.	4 Placebos t.i.d.
2P	FM	19-10	91	Athetoid, Severe	24	2 Placebos t.i.d.	4 Placebos t.i.d.
3P	SJ	6- 9	32	Athetoid, Severe	9	2 Placebos b.i.d.	3-2-3 Placebos
4P	AM	8- 3	35	Athetoid, Moderate	18	2 Placebos b.i.d.	3-2-3 Placebos
5P	DT	17-10	100	Spastic Paraplegia, Severe	35	2 Placebos t.i.d.	4 Placebos t.i.d.
6P	ER	11- 6	48½	Spastic Paraplegia, Severe	19	2 Placebos t.i.d.	4 Placebos t.i.d.
7P	JO	10- 8	50	Spastic Quadriplegia, Severe	8	2 Placebos t.i.d.	4 Placebos t.i.d.
8P	RB	5- 0	28	Spastic Quadriplegia, Severe	6	2 Placebos b.i.d.	3-2-3 Placebos
9P	ED	7- 5	43½	Spastic Quadriplegia, Severe	11	2 Placebos t.i.d.	4 Placebos t.i.d.
10P	EI	10-10	33	Spastic Quadriplegia, Severe	1	2 Placebos b.i.d.	3-2-3 Placebos
11P	EK	19- 8	73	Spastic Quadriplegia, Severe	43	2 Placebos t.i.d.	4 Placebos t.i.d.
12P	PK	11- 4	58	Spastic Quadriplegia, Severe	29	2 Placebos t.i.d.	4 Placebos t.i.d.
13P	AP	3- 8	19¼	Spastic Quadriplegia, Severe	4	2 Placebos b.i.d.	3-2-3- Placebos
14P	IM	5- 0	33½	Spastic Quadriplegia, Moderate	16	2 Placebos b.i.d.	3-2-3 Placebos

observed carefully for 20 more days to see what the effects of withdrawal might be, and a final evaluation was then made on each patient and on the project as a whole. There were no withdrawal ill effects noted. Each child was graded as zero, plus one, plus two, or plus three, signifying respectively: no significant change, slight improvement, moderate improvement, or marked physical improvement. These grades are admittedly subjective, but they represent the considered opinion of all who had worked with these patients during the time of the experiment. In the Equanil group, 4 were graded zero, 7 plus one, 1 plus two, and 2 plus three. In the Placebo group, 4 were graded zero, 7 plus one, 2 plus two, and 1 plus three. There were obviously no significant differences between the two groups, as groups. Chart II shows the preliminary and final evaluations on each patient as well as a brief final impression. Six cases have been chosen as representative of the results on the individual level and these will be described briefly.

CASE 13E

Before the experiment began Case 13E was a friendly, but not cooperative, spastic quadriplegic, age 2 years 9 months. Head balance was poor and he demonstrated

no functional activity, although he could sometimes move his extremities through good range of motion. During the project he was usually very relaxed but unresponsive. He was evaluated as grade zero. When the drug was withdrawn he became more active, occasionally trying reach and grasp for bright objects. He tried to roll over on the mat and showed some interest in a crawler which he sometimes attempted to use. In this case the drug evidently suppressed almost all functional activity rather than making it easier. Upon withdrawal he showed more functional attempts than were evident before the experiment began.

CASE 2E

Case 2E was a moderate athetoid; he was a fairly cooperative boy age 7 years, 10 months. Before the project began he had normal active range of motion but it was uncoordinated. Most muscle groups graded

TABLE II

FINAL EVALUATION OF COMBINED EQUANIL® OR PLACEBO ADJUNCT THERAPY FOR CEREBRAL PALSY CHILDREN THREE WEEKS AFTER DISCONTINUANCE OF DRUGS

No.	Initials	Initial Evaluation 2½ Mo.R	Initial Evaluation 9 Mo. R	Final Impression 20 Days after Cessation of Drug Therapy
1E	TM	0	○ 0	Relaxed by drug but did not put this to any functional use. No significant change in 3 years.
2E	JT	±	±	Slow improvement apparently unaffected by drug.
3E	OY	±	±	Some relaxation from drug; passive range of motion easier. Still hyperactive.
4E	WB	± ±	±	Initial, short-term relaxation. Improved in balance.
5E	FM	±	0	Slight initial effect on range and disposition
6E	RH	0	0	No change noted.
7E	RP	± ±	± ± ±	More relaxed; disposition improved. No adverse effect of withdrawal. Improved in range, strength, balance and gait.
8E	CL	± ± ±	±	Marked drug effect in relaxation allowing some purposeful movement. Regressed on withdrawal.
9E	AS	±	± ±	A little more relaxed. Balance improved.
10E	PA	± ±	±	A little drowsy for a while. Some gain in strength.
11E	BC	±	0	Drowsy for a while. Little change noted.
12E	GW	±	±	Very relaxed and inactive. On withdrawal spasticity returned and became more active.
13E	WW	0	0	Very drowsy and sleepy most of time. Became more active on withdrawal.
14E	ER	± ±	±	Became a little quieter. Balance improved.
1P	MH	±	0	Child tries very hard without results.
2P	FM	0	±	Slow increase strength and range.
3P	SJ	±	±	Improvement in sitting balance.
4P	AM	± ±	± ± ±	Steady improvement in strength, balance, and coordination.
5P	DT	±	0	Any gains quickly lost.
6P	ER	±	± ±	Some improvement in cooperation. Learned to walk alone.

TABLE II (Continued)

No.	Initials	Initial Evaluation 2½ Mo. R	Initial Evaluation 9 Mo. R	Final Impression 20 Days after Cessation of Drug Therapy
7P	JO	+	+	Slow improvement in strength and activity.
8P	RB	+	+	Slow improvement in creeping, reach and grasp left hand.
9P	ED	+	0	No cooperation.
10P	EI	0	0	No cooperation.
11P	EK	+ +	+	Slight improvement in strength, range and ADL.
12P	PK	+ + +	+ + +	Marked improvement in strength, range, balance, ADL. Slight improvement in gait.
13P	AP	0	+	Slight improvement in passive and active range.
14P	IM	+ +	+ +	Improvement in strength and balance. Taken home after 5 months.

50-75 per cent of normal in strength. Head and sitting balance were good; standing balance was fair. He could walk a short distance alone with a rather uncoordinated gait. Hand activities were uncoordinated but he could feed and partially dress himself. A slight decrease in erratic activity was noted when the drug dosage was stepped up but this lasted only a short time and there were no noticeable effects when the drug was withdrawn. During the nine months he continued to show increases in strength (as much as 40 per cent in some groups), and standing balance improved slightly. He was graded plus one.

CASE 7E

Case 7E had been on treatment for some time. He was a spastic paraplegic, age 10 years, 3 months, when the project began. He could walk a short distance with assistance but he took little interest in his treatment and was not too cooperative. After medication began (and was increased) he was often drowsy, especially in the hydrotherapy tub where he frequently fell asleep. But he then awakened and responded well in exercise. It became easier to stretch his muscular tightness. He became more cooperative, more friendly and more interested in cooperating with the therapists. At the end of the period there were marked improvements in active and passive range of motion and in muscular strength. Standing balance improved from poor to fair. He learned to walk alone and, on his own initiative began to walk from the cottage to the physical therapy department for treatment. He was graded plus three. When the drug was withdrawn, he remained friendly and cooperative and the gains in range and strength remained. No significant changes had been noted when the drug was withdrawn, yet the months after medication were so different from the months preceding that everyone felt that there was a connection between the drug and the change in his rate of progress. It was suggested that the drug relieved emotional tensions thus improving his disposition which resulted in greater efforts to help himself. The relaxation provided by the drug also facilitated stretching of muscular tightness that had been superimposed on the spasticity and thus aided in the progress of passive and active range of motion.

CASE 8E

Case 8E was a 10 year, 9 months old, severely involved spastic quadriplegic girl who was extremely difficult to handle due to the spasticity. She never relaxed in the warm bath. Her head balance was fair; she tried very hard to cooperate but was almost totally unsuccessful. This patient began to relax almost immediately after the program began and continued to relax more than she had ever done before, both in the tub and during exercise, but relaxation was never complete. With the medication she gained some voluntary control over her limbs; she learned to place her arms over her head, hold them there, and bring them down on request. She learned to reach out and grasp an object. She could extend her elbows and hold them straight without assistance while in the tub. She began to crawl on her knees with much assistance in balance, and she began to creep across the mat unaided. Personnel in the cottage noted an improvement in her ability to hold and use a cup and to sit up with aid. When the drug was withdrawn she returned to her original state—very spastic and hard to manage; she lost most of the voluntary and functional abilities she had learned the previous nine months. Without medication her condition seemed hopeless; with it there was progress and hope. She had been graded plus three with the drug, but one plus after withdrawal of medication.

CASE 12P

Case 12P is an example of a patient graded plus three who received placebos. This was an 11 year, 4 months old spastic quadriplegic boy. When the program began his head balance was good, sitting balance fair. He had fairly good control of gross movements in his limbs and he could walk in the parallel bars by leaning heavily on the bars. He assisted slightly in feeding and dressing himself. Nine months later he had gained in strength by as much as 50 per cent in some muscle groups; there was noticeable improvement in active range of motion. Sitting balance improved to the point

where he could sit unsupported for several minutes. He learned to crawl on his knees and elbows. He could handle himself better in the parallel bars, turning around unaided and leaning much less on the bars for support. He could stand taller in the bars than before. The cottage personnel reported an improvement in self care activities.

CASE 14P

Case 14P was a 5 year old boy with a moderate spastic quadriplegia. He was very friendly and tried to cooperate with the therapists. The staff felt that his I.Q. was much higher than the score of 16. He received only 87 treatments during the nine month period because of illness and a prolonged home visit. He was not seen in the department after September, 1957. In the beginning, range of motion was essentially normal but the general musculature was weak and graded about 50 per cent of normal. Head balance was poor; sitting balance was very poor. He could roll over and get into a crawling poistion and could walk with a great deal of assistance. When he went home in September he was showing a steady gain in strength especially in the upper extremities. His neck was getting stronger and head balance was improving concomitantly. He was rated a plus two.

SUMMARY

In the Equanil group 3 patients showed no effects at all from the drug and 11 reacted to the medication by being drowsy and/or more relaxed. The drowsiness cleared up within a few days for most of the patients; in a few it lasted for several weeks or more. Only 2 were drowsy and sleepy throughout the test period (12E and 13E) and we feel that in these 2 cases the drug hindered rather than promoted progress by making them too relaxed for active exercise. This is not to say that all spasticity was gone, but that they became unresponsive to requests for active motion. In 1 of these cases (12E) the drug had some beneficial results in that it made the stretching of muscular tightness much easier and produced some gain in passive movement. Both of these children became more responsive when the drug was withdrawn. One patient (1E) was drowsy off and on for a considerable time and more relaxed throughout the test period, but he could still respond actively. He became more lively when the drug was withdrawn.

Two children (3E and 7E) became much easier to stretch, and gains were made in passive and active range of motion. Yet no ill effects were noted from the withdrawal of the drug. Number 7E also improved a great deal in his attitude and disposition, which did not regress.

One girl (8E) showed no improvement until Equanil was given. With medication she made good progress, considering the severity of her condition. She regressed when the drug was withdrawn. The remainder of Group I showed little permanent discernible effect from the medication, and withdrawal caused no evident reaction.

The conclusion drawn from this study utilizing cerebral palsy children with low levels of measured intelligence is that, while far from being a panacea to the multiple problems of cerebral palsy, Equanil, judiciously used, may be of aid in the management of selected cases. In only 1 child was tranquilization of any significance, and it may be in those patients with emotional overtones to their cerebral palsy that Meprobamate is an effective adjunct in management.

During the nine month period of placebo administration to a control group, an equal number of these children also showed improvement. This may suggest a placebo effect; or that an intensive and coordinated program of physical therapy plus interest and involvement of cottage personnel in this study was the fundamental ingredient.

REFERENCES

1. Gillette, H. E.: Relaxant effects of Meprobamate in disabilities resulting from musculoskeletal and central nervous system disaorders. Internat. Rec. M., 169: 453-468, 1956
2. Perlstein, M. A.: Use of Meprobamate (Miltown) in convulsive and related disorders. J. Am. M. Ass., 161: 1040-1044, 1956
3. Gillette, H. E.: The effect of Meprobamate on cerebral palsy. Bull. N. York Acad. M., 67: 859-872, 1957
4. Katz, B. E.: Education of cerebral palsied children. J. Pediat., 53: 467-475, 1958
5. Plum, P., and Sparup, K.: Mysoline and Meprobamate in cerebral palsy. Acta. paediat., 47: 260-264, 1958
6. Kugelmass, I. N.: Mechanism and management of cerebral palsy. Int. Rec. M., 171: 186-207, 1958.
7. Carter, C. H.: The effect of Meprobamate (Equanil) on brain-damaged patients. Am. J. M. Sc., 235: 632-638, 1958
8. Charash, L. I., and Cooper, W.: Experiences with Meprobamate in cerebral palsy. Pediatrics, 21: 605-608, 1958
9. Deaver, G. G.: Therapeutic procedure in treating the cerebral palsied child. Int. Rec. M., 171: 215-218, 1958
10. Knott, M.: Specialized neuromuscular technics in the treatment of cerebral palsy. Phys. Ther. Rev., 32: 73-75, 1952
11. Hipps, H. E.: Basic teaching-training principles for the patient with cerebral palsy. Am. J. Surg., 91: 715-718, 1956
12. ————: Six year report on the use of the cerebral palsy chair brace. Southwestern M., 37: 238-240, 1956.
13. Spencer, H. G.: Balance training in cerebral palsy: principles and procedures. Phys. Ther. Rev., 37: 501-511, 1957

The Management of Myofascial Pain Syndromes*

John J. Bonica, M.D.

The management of myofascial pain syndromes † constitutes one of the most important problems encountered in clinical practice. This group of disorders, characterized by the presence of a hypersensitive region, the so-called "trigger area," together with a specific syndrome of pain, muscle spasm, tenderness, stiffness, limitation of motion, weakness, and occasionally autonomic dysfunction, is particularly important to the physical therapist because his services are essential for proper treatment. The significance of this problem stems from several factors, not the least important of which is that these disorders are among the most frequent causes of severe, disabling pain. In fact, they are the most common musculoskeletal disabilities of the shoulder girdle, neck, and low back. Moreover, because of their peculiar symptomatology, until recently their true nature was not generally recognized, and consequently was often diagnosed and wrongly treated as bursitis, arthritis, and occasionally as visceral diseases. Fortunately, during the past several years, through the efforts of Travell and her associates, Stockman, Good, Mennell, Gutstein, and Gorrell and others, the various myofascial syndromes have been described, properly delineated, and classified; their mechanism is better understood, and effective methods of treatment have been developed. A significant consideration is that they are relatively simple to manage, and, when treatment is properly executed, prompt cure ensues. On the other hand, if therapy is incorrect, chronic disability results.

Director of the Departments of Anesthesiology, Tacoma General Hospital and Pierce County Hospital; and Clinical Associate Professor, Department of Anatomy, University of Washington.

* An adaptation of a paper read before the 10th Clinical Meeting of the American Medical Association, Seattle, Nov. 29, 1956, and published in the *Journal of the American Medical Association*, June 15, 1957. Presented at the Annual Conference of the American Physical Therapy Association in Seattle, June, 1958.

Permission has been granted by the *Journal of the American Medical Association* to reproduce this material and the accompanying illustrations.

† These disturbances have been previously described as among other terms, myalgia, myositis, fibromyositis, fibrositis, or myofibrositis, fascitis, myofascitis, muscular rheumatism, and muscular strains.

Etiology

The most important causes of myofascial pain syndromes are sudden traumas to myofascial structures. After acute injury to muscles, bones, and joints in some individuals, there are formed "trigger areas" (this term, as used here, is synonymous with "trigger zones," "trigger points," "myalgic spots," and "myalgic areas"). These trigger areas may be defined as small, circumscribed, hypersensitive regions in muscles or in connective tissues from which impulses arise and bombard the central nervous system to produce referred pain. The trigger area is so called because its stimulation, like the pulling of the trigger of a gun, produces effects at another place (the target), called the "reference zone" or "area of reference."

A prolonged barrage of noxious impulses from a trigger area is conducive to the creation of secondary tender areas in the zone of reference. In such instances the more recent secondary foci may be a major source of pain, and it is not until these are blocked that the primary focus becomes evident. Although trigger areas may develop in any muscle, viscera, or connective tissue anywhere in the body, they occur most frequently at sites of greatest mechanical stress. Consequently myofascial pain syndromes occur most frequently in the shoulder girdle, low back, and neck.

In addition to severe, acute trauma, the role of which in these disorders is made obvious by the prompt onset of symptoms, the trauma of slight injuries may play an equally important part. In these latter cases, the injury is such that its connection with the pain syndrome is not readily traced and the relationship is overlooked because the symptomatology develops only gradually. Even less frequently recognized, and yet equally important, as a cause of myofascial pain syndromes are the repetitious microtraumas of daily living and chronic muscular strain, especially in sedentary persons over the age of 35.

In addition, trigger areas may be initiated by the chilling of fatigued muscles, arthritis, acute myositis, nerve injuries, and other neuromusculo-

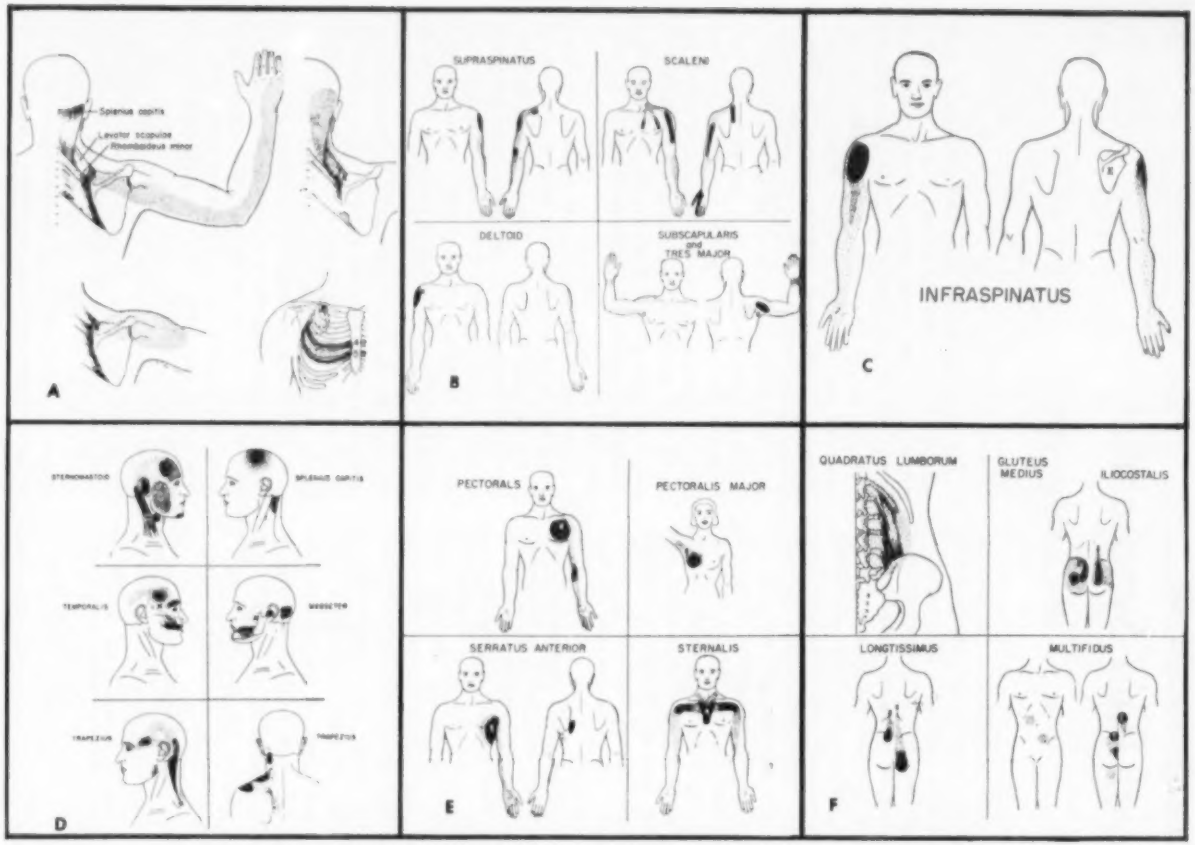


Figure 1. *A*, diagrammatic representation of scapulocostal syndrome. "X" represents site of trigger area at superior medial angle of scapula, and stippled areas represent various patterns of pain reference (see text). (After Michele and associates.[11]) *B*, myofascial pain syndromes of shoulders and arms. Note location of trigger areas (X) and reference of pain in "essential" (black) and "spillover" (stippled) zones of reference. *C*, infraspinatus syndrome. *D*, myofascial pain syndromes of the head and neck. *E*, diagrams showing most important pain patterns (black and stippled) of the chest caused by trigger areas (X) in various muscles. *F*, various myofascial pain syndromes of the low back. (After Travell and Sola.)

skeletal disorders and by visceral ischemia or dyskinesia. General fatigue and low metabolic rate, with creatinuria, chronic infection, and psychogenic stress, may act as predisposing factors in the development of trigger areas.

These abnormal foci of pain can be activated by pressure, by motion that stretches the structure containing them, or by intense heat or cold. Diathermy often aggravates the pain. These areas are also very sensitive to such prolonged cooling as occurs in damp weather or after being in drafts. It should be mentioned that, although the trigger mechanism is set off by pressure, if the latter is sustained it will often block the mechanism.

Perhaps the most important characteristic of the trigger area from a therapeutic standpoint is that, by local block procedures with only transitory pharmacological action, it can be rendered nonexcitable, and the vicious pain cycle can be terminated for long periods of time or even permanently.

SYMPTOMATOLOGY

The referred pain is dull and aching in character, and its intensity may vary from a low-grade discomfort to a type of pain which is very severe and incapacitating. It is usually elicited explosively and spontaneously as soon as the trigger area is stimulated. The extent of the area of the referred pain (and associated phenomena) apparently depends on the sensitivity of the trigger area. If the trigger area is very sensitive, there is a wide radiation of pain to include an essential zone of reference and a "spill-over" zone; whereas, if it is not very sensitive, pain is present in the "essential" zone only. The deep hyperalgesia or tenderness in the reference zone, which accompanies the referred pain when a trigger area is stimulated, persists longer than the pain. Cutaneous hyperesthesia sometimes also appears.

Skeletal muscle spasm almost always accompanies stimulation of these regions. Continued muscle spasm, with production of metabolites, may serve as a new source of noxious stimuli which bombard the internuncial pools. Thus, spasm leads to pain and pain to further splinting and spasm; and so a self-sustaining vicious cycle is developed. Unless this self-propagating cycle is interrupted, the prolonged spasm and consequent immobility may lead to organic changes of any joint which may be involved in the pain syndrome.

In addition to these signs and symptoms, certain concomitant autonomic effects, such as vasoconstriction, edema, or sudomotor hyperactivity, may also be produced when the trigger areas are of high intensity. In such instances these trigger points act as sympathetic excitants and, as such, respond readily to various stress factors, especially those of psychic origin.

The pattern of referred pain and associated phenomena is relatively constant and predictable, a fact which indicates that impulses concerned in the unfamiliar reference of somatic pain, like that of visceral pain, follow fixed anatomic pathways. This predictability of pain patterns enables one to use a known reference pattern by which to locate the myofascial source of the pain. It must be added, however, that the distribution of referred somatic pain though remarkably constant for the structure stimulated, does not follow a dermatomal pattern or nerve root distribution. This lack of neurotomal distribution of the symptomatology has been perhaps the most important factor which has delayed recognition of this group of disorders as clinical entities. In fact, some physicians have been inclined to discount their existence by labeling them functional. However, too many responsible clinicians have reported noting the characteristic trigger areas and patterns of symptoms and signs, which have been surprisingly constant among hundreds of patients. Recently Sola and Williams have adduced objective evidence, by means of galvanic stimulation and exploration with a neurodermanometer that suggests that there is abnormal vasomotor activity in the trigger area.

When the trigger area is located in the fibrous structures about a joint, pain is usually not referred to any great distance from the trigger area, whereas, when the trigger area is located in muscles, the pain is usually referred to areas a considerable distance away. This is not a strict rule because occasionally the reference zone surrounds the trigger area. It must be emphasized, however, that in most instances the site of the trigger area is not within the zone of reference.

Specific syndromes

The most common myofascial pain syndromes are illustrated in figures 1 and 2. These figures represent composite patterns found in patients examined in our clinic and also patterns noted by Travell and her associates and by Sola and his co-workers.

Some of the pain syndromes about the shoulder girdle deserve special mention, because they are the most common cause of disability in this region. Our experience, as well as the experience of others, suggests that many cases which in the

past have been diagnosed as subacromial bursitis, tendinitis, arthritis, periarthritis and brachial neuritis were actually myofascial pain syndromes, with trigger areas in the muscles of the back and shoulder girdle and pain referred to the shoulder and arm. The lower end of the levator scapulae muscle near its insertion is particularly liable to develop a trigger area which, when stimulated, produces pain, tenderness, muscle spasm, and stiffness in the posterior portion of the neck and occipital region of the head. When the trigger area is unusually sensitive, the pattern may also involve the posterior aspect of the shoulder and suprascapular region.

Michele and his associates have recently described a symptom comptex closely related to the levator scapulae syndrome, which they labeled the *scapulocostal syndrome*. They defined it as a pattern of pain radiation involving the shoulder and pectoral girdle, with a trigger point at the superior medial angle of the scapula. They found this condition in one third of the middle-aged persons presenting shoulder complaints, both sexes being equally affected. At first there is a deep-seated pain in the shoulder, but later the pain may become more severe and spread to one or more of the following regions: (1) up the neck to the occiput and the side of the head; (2) down the back of the arm and often to the forearm, wrist, and hand; (3) around the chest, particularly along the course of the fourth and fifth intercostal nerves; and (4) a combination of these, as depicted in figure 1A. When the pain involves only the left side of the chest, it simulates angina pectoris. We have seen a number of patients who had been treated for myocardial infarction and who actually had myofascial pain syndrome, which responded dramatically to local block therapy.

Another frequent cause of shoulder pain in young adults is the *infraspinatus syndrome*, which is characterized by a trigger point in the inferior lateral portion of the muscle and by pain referred to the anterior lateral aspect of the shoulder and the region of the long head of the biceps. Not infrequently there is also radiation down the arm, forearm, and hand, and associated fatigue of the shoulder girdle, weakness of the grip, loss of range of motion of the shoulder, hyperhidrosis of the axilla, and vasomotor changes.

The *trapezius muscle* is another commonly involved structure in painful syndromes of the head, neck, and shoulder girdle. The most common etiologic factor here is chronic strain due to poor posture (shoulder droop). In most cases the trigger area is located in the superior margin or in the infrascapular portion of the muscle, and the pain is in the neck, in the back of the head, and occasionally to the side of the head, centering in the temple and back of the eyeball. In addition, there is a spasm of the lateral neck muscles and vasoconstriction of the temporal artery.

The *sternomastoid syndrome* is characterized by a trigger area anywhere along the length of the sternocleidomastoid muscle and by pain on the forehead, about the hair line, in the ear, in the posterior mastoid process, and in the throat and chin. In addition, there is pain of lesser degree through the face. Spasm of this muscle, which frequently accompanies the pain, is a common cause of acute stiff neck. Autonomic effects associated with this syndrome include vasoconstriction of the temporal artery, which is followed by vasodilatation as soon as the trigger area is blocked, and sweating of the same side of the head. A certain number of the patients with sternomastoid syndrome develop chest pain, mainly in the substernal region, which simulates angina pectoris.

After acute trauma or, more frequently, chronic strain, a number of other muscles, including the pectorals, the serratus anterior, and the sternalis, may develop trigger areas which produce chest and arm pain that may be misinterpreted by the patient and physician to be of cardiac origin. In such cases there is no electrocardiographic or other evidence of organic heart disease.

Trigger points found in muscles of the suboccipital region and face are common causes of pain in the upper posterior portion of the neck, the back of the head, and the face. Unilateral low-back pain in young adults is commonly found to be secondary to activation of trigger areas located at the insertion of the quadratus lumborum muscle to the transverse process of the upper three lumbar vertebrae and the twelfth rib. The pain may be localized to the back but is frequently radiated to the lower abdominal wall and anterior thigh. Other common causes of pain in the anterolateral thigh as well as the hip are trigger points in the tensor fasciae latae, gluteus medius, or sartorius. Trigger points frequently develop after simple sprains, particularly of the ankle, and produce myofascial syndromes, which can be cured by infiltration of the trigger area with a local anesthetic or by the ethyl chloride spray technic.

DIAGNOSIS

Diagnosis of these syndromes depends upon identification of the trigger area by noting the

aggravation of pain when it is stimulated and the elimination of pain when it is injected with a local anesthetic. These conditions must be differentiated from neurological, vertebral, or paravertebral lesions by thorough physical (mainly orthopedic), roentgenographic, and neurological examinations. The distinction is relatively simple to make, since distribution of pain of myofascial disorders is not segmental, nor does it fit a peripheral nerve distribution. Moreover, there is usually no sensory deficit or reflex change with myofascial pain syndromes. On the other hand, movement of the part markedly aggravates the pain of myofascial syndromes.

TREATMENT

Local Block Therapy.—The treatment of myofascial pain syndromes with trigger mechanism revolves around interruptions of the pain cycle by local block of the trigger area. This may be accomplished by infiltration with a local anesthetic or other material or by spraying the overlying skin with ethyl chloride. The most dramatic results are obtained when the pain syndrome is due to sudden trauma, without previous history of muscular pain or stiffness. In such cases spontaneous referred pain disappears very soon after the block is executed, and mechanical stimulation no longer induces reference of pain. The accompanying referred tenderness, muscular spasm, limited motion, and vasomotor and sudomotor disturbances likewise disappear. If, after the block is dissipated, the pain returns, its area of distribution is smaller and its intensity less.

The theory underlying this type of treatment is that the entire symptom complex is an expression of reflex mechanisms, which, once initiated, are self-sustaining by implication of closed self-reexciting chains of internuncial neurons in the central nervous system. Interruption of this pain cycle with block procedures with only transistory action may abolish the complex permanently.

It must be reemphasized that treatment must be directed primarily toward the trigger area and not to the zone of reference. Although infiltration of the spastic muscle and application of heat and other physical therapeutic procedures to produce spasmolysis are of benefit, block of the trigger area is more efficacious, because it eliminates the cause of the referred pain and associated phenomena. It is also important to remember that more than one trigger area may be present. Therefore, for optimal results it is necessary to examine all the muscles where trigger areas producing the pain pattern could possibly be located in order that all these abnormal foci of pain can be blocked.

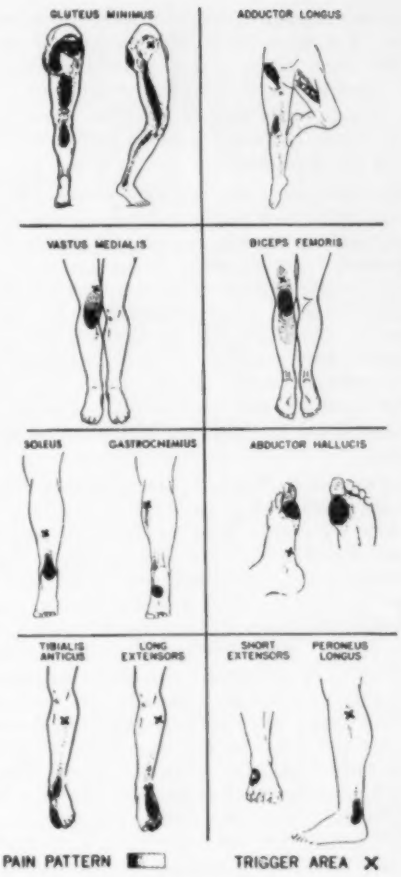


Figure 2. Myofascial pain syndromes of the lower extremities.

Location of Trigger Area: From the above description of the trigger point it is obvious that the most important step of the infiltration technic is to locate exactly the trigger area. This may be best accomplished by palpating the suspected area with a finger or, better still, with the end of a fountain pen or any other object which has a dull point, 3 to 5 mm. in diameter. The palpation should be systematic, so that every square centimeter of the surface overlying the sensitive zone or the site from which the pain arises is palpated.

Technic of Injection: For the injection, the patient is placed in the recumbent position in order

to prevent attacks of syncope, which occasionally occur. It is advisable to have a source of oxygen in the office to treat any untoward reactions. This need not be a complicated piece of equipment but merely a tank, a regulator, a mask, and a bag. Such equipment is useful to treat reactions due to any treatment.

The injection is accomplished with a 25-gauge 5-cm. needle which makes preliminary skin wheals unnecessary and even undesirable, because the pain caused during their formation is usually more than the deliberate insertion of a fine needle through the skin. Some clinicians employ needles which are 22 or 20 gauge, particularly for fear of breaking finer needles. Proper insertion of a good needle, however, should eliminate the danger of breakage and has the advantage of making insertions painless and avoiding trauma to tissues.

The agent used for injection is usually a dilute aqueous solution of procaine (Novocaine) hydrochloride, tetracaine (Pontocaine) hydrochloride, or any other local anesthetic drug, because these effect reliable and consistent results. Usually 5 to 10 ml. of 0.5 per cent procaine, 0.1 per cent tetracaine, or equiactive concentrations of other drugs suffice. Although good results have been reported with injections of saline solution and dry needling, experience prompts me to emphasize the superiority of local anesthetics, which not only are more effective but diminish the discomfort associated with the injection. If properly used, the incidence of toxic reactions with these drugs is negligible since the amount is relatively small. Occasionally we inject 25 mg. of hydrocortisone after the infiltration with the local anesthetic. The needle is then introduced in the same direction as that in which the pressure was exerted to elicit tenderness. It is slowly advanced until it encounters tissue that resists its passage or until its point touches the trigger point, as illustrated in figure 3A, eliciting exquisite tenderness and pain not only locally but also at the zone of reference. The depth of the injection depends on the region involved and on the site of the trigger area. At this point 3 to 5 cc. of local anesthetic solution is injected under pressure. If the point of the needle is near to or actually in the trigger area, the injection causes exaggeration of the local and referred pain and tenderness. This is presumptive evidence that the injection has been properly executed. Confirmation is obtained if the block effects relief of pain and muscle spasm, which it does dramatically in some cases. If no relief is obtained, it is most likely that the trigger point was not injected, indicating another trial. A fanlike approach is made by inserting the needle at different angles until the most sensitive region is contacted. It is essential to obliterate the trigger areas completely by repeated infiltration, since incomplete blocking is not only partially ineffective but is followed by increased pain after disappearance of the effects of the block.

The relief of pain, tenderness, muscle spasm, and other effects persists for several hours and sometimes for days, weeks, months, or even permanently. However, in many instances symptoms recur after the period of relief, frequently to an exaggerated degree. The patient should be informed that such a reaction should not be considered unfavorable, because if the area is injected again the reaction will be much less and the secondary periods of relief will be longer and more encouraging. In acute cases one treatment is sometimes sufficient, whereas in chronic cases a series of treatments is usually necessary. Injections are repeated every second, third, or fourth day, depending on the severity and acuteness of the condition. Further injections are indicated if the patient obtained relief or if there is change in the character of the pain.

Technic of Ethyl Chloride Spray.—The technic of ethyl chloride spray is so simple that some clinicians employ it as the first procedure in treating myofascial pain syndromes. The benefits to be derived from this form of treatment can usually be estimated at once; if the effects are encouraging, the procedure is repeated at intervals, as indicated, and cure may be obtained with this method alone. If the results are not striking, the infiltration technic is used.

As with the infiltration method, it is essential to locate the trigger area and to employ a proper technic. The patient is made comfortable, and the part to be sprayed is well supported, so that the involved muscles are relaxed. The bottle of ethyl chloride is held 12 to 18 inches away from the patient and the spray applied at an acute angle with the skin, as illustrated in figure 3B. The stream is passed over the region of the trigger area and moved slowly in one direction, rather than to and fro. The direction is determined by the pain reference pattern of the specific trigger areas being sprayed; the sweep should be started at the trigger area and made to travel toward the reference zone. It is repeated, a few seconds on and a few seconds off, until the entire reference zone has been sprayed. Occasionally only 1 or 2 sprayings are sufficient, though in the majority of cases 15 or 20 are necessary to produce the desired effects. If aching develops, the intervals be-

tween sweeps should be lengthened. During the spraying slight pressure is exerted to produce passive stretching of the painful muscle, and at intervals between spraying active motion is effected. But it is important not to overstretch the painful muscles, since this practice causes reflex muscular contraction, which can inhibit the beneficial effects of the spray.

Since ethyl chloride is an inflammable and explosive general anesthetic agent, certain precautions must be taken during spraying. Since the vapor is heavier than air, the patient should be so positioned that the vapors gravitate away from his face. The room should have adequate ventilation to disperse the vapors, and sources of fires and explosions, such as cigarettes, open flame, or electric motors, should be absolutely avoided.

Adjuncts to Local Block. For optimal results it is necessary to use other therapeutic measures in addition to local block. If autonomic dysfunctions are prominent, a sympathetic block is done in addition to the infiltration or spray.

Immediately after these procedures the patient should be sent to the therapist for deep heat and deep friction massage. Passive and active motion of the part is an essential adjunct to treatment. The patient is impressed as to the importance of his active participation in the treatment, and he is encouraged to undertake the forms of exercise he formerly enjoyed. On the other hand, it is essential that the involved muscles should not be activated too rapidly or moved to a painful degree, especially in the early phases of treatment, since severe pain itself is deleterious in that it reflexly builds up more spasm.

Definitive treatment is directed toward eliminating the predisposing and precipitating factors to prevent recurrences. Psychotherapy is of importance because of the dominant etiological role played by emotional tension in some of these syndromes. Since chronic trauma, secondary to poor posture, is also an important factor in the causation of the trigger areas, a program of exercise to strengthen the involved muscles should be instituted.

SUMMARY

Myofascial pain syndromes are among the most common causes of pain and disability, especially around the shoulders, low back, and neck. These disorders are usually the result of acute or chronic injury and are characterized by the presence of trigger areas and symptom complexes which have definite patterns. Once these patterns have been learned, the sources of pain can be readily predicted.

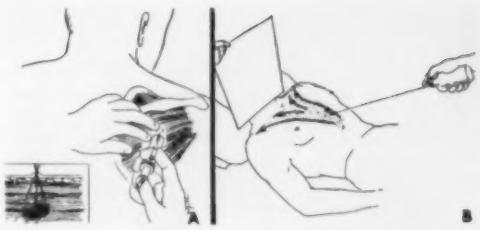


Figure 3. *A*, technic of injecting trigger area located in infraspinatus muscle. Insert illustrates trigger area and method of approaching it with needle in order to inject local anesthetic solution, saline solution, hydrocortisone or other substance. *B*, technic of spraying ethyl chloride for managing infraspinatus syndrome. Arrows indicate direction of spray.

These conditions can be effectively treated by the general practitioner in his office with local block technics in the form of infiltration with local anesthetic agents or application of ethyl chloride spray. The utility of this method is based on the notion that in these disorders there is a self-sustaining cycle of pain-spasm-pain persisting after the precipitating cause has disappeared, which may be permanently abolished by interruption of the reflex mechanisms.

In order to produce optimal results, the trigger area must be accurately located and treatment directed primarily toward its elimination. Physical therapy and active exercise are necessary adjuncts to local blocks. Not all patients respond, and in many the response is slow, incomplete, and/or only temporary, but there are those in whom these simple measures provide relief of pain and disability in a manner as dramatic as one is likely to encounter in general practice.

Figure 1*D* and *E* is reproduced with permission of *Postgraduate Medicine* (11:425 [May] 1952), figure 2 was supplied by Dr. Janet Travell, and figure 3*B* is reproduced with permission of *Archives of Physical Medicine* (33:294 [May] 1952).

REFERENCES

1. Bonica, J. J.: Management of Pain: With Special Emphasis on Use of Analgesic Block in Diagnosis, Prognosis, and Therapy, Philadelphia, Lea & Febiger, 1953.

2. (*a*) Travell, J.: Management of Pain Due to Muscle Spasm, in Conference on Therapy, New York J. Med. 45:2095 (Oct. 1) 1945. (*b*) Rinzler, S. H., and Travell, J.: Therapy Directed at Somatic Component of Cardiac Pain, Am. Heart J. 35: 248-268 (Feb.) 1948 (*c*) Travell, J.: Treatment of Painful Disorders of Skeletal Muscle, in Conferences on Therapy, New York J. Med. 48: 2050-2059 (Sept. 15) 1948. (*d*) Travell, J., and Rinzler, S. H.: Pain Syndromes of the Chest Muscles: Resemblance to Effort Angina and Myocardial Infraction, and Relief by Local Block, Canad. M. A. J. 59: 333-338 (Oct.) 1948. Travell, J.: (*e*) Basis for Multiple Uses of Local Block of Somatic Trigger Areas (Procaine Infiltration and Ethyl Chloride Spray), Mississippi Valley M. J. 71:13-21 (Jan.) 1949; (*f*) Pain Mechanism in Connective Tissue, New York, Josiah Macy, Jr., Foundation, 1952; (*g*) Ethyl Chloride

Spray for Painful Muscle Spasm. Arch. Phys. Med. 33: 291-298 (May) 1952; (b) Relief of Pain by Ethyl Chloride Spray, in Cornell Conferences on Therapy, New York J. Med. 52: 1550-1558 (June) 1952.
3. Stockman, R.: Rheumatism and Arthritis, Edinburgh, W. Green & Son, 1920.
4. Good, M. G.: Diagnosis and Treatment of Low Backache, M. Press 220: 498, 1948.
5. Mennell, J.: Science and Art of Joint Manipulation: The Spinal Column, New York, Blakiston Company, 1952.
6. Gutstein, M.: Diagnosis and Treatment of Muscular Rheumatism. Brit. J. Phys. Med. 1: 302 (Sept.) 1938.
7. (a) Gorrell, R. L.: Treatment of Skeletal Pain with Procaine Injections: Analysis of 295 Cases in General Practice, Am. J. Surg. 63: 102-104 (Jan.) 1944. (b) Sola, A. E., and Kuitert, J. H.: Myofascial Trigger Point Pain in Neck and Shoulder Girdle, Northwest Med. 54: 980-984 (Sept.) 1955. (c) Sola, A. E., and Williams, R. L.: Myofascial Pain Syndromes, Neurology 6: 91-95 (Feb.) 1956.
8. Footnotes 1 and 2f.
9. Footnote 7b and c.
10. Footnotes 1 and 2a, b, c, d, e, and f.
11. Michele, A. A.; Davis, J. J.; Krueger, F. J.; and Lichtor, J. M.: Scapulocostal Syndrome (Fatigue-Postural Paradox), New York J. Med. 50: 1353-1356 (June 1) 1950.
12. Kraus, H.: Use of Surface Anesthesia in Treatment of Painful Motion, J. A. M. A. 116: 2582-2583 (June 7) 1941. Footnote 2c, e, g, and h.

Physical Therapy in Surgical Treatment of Pulmonary Tuberculosis

Mary Hemenway, Capt., AMSC, USA, and Clotilde D. Bowen, Major, MC, USA

With the advent of new and improved antibiotic and chemotherapeutic agents and the changing trends in thoracic surgery, the treatment of the pulmonary tuberculosis patient undergoing chest surgery has become a most important phase of physical therapy. During the past 18 months, 185 pulmonary tuberculosis patients have received pre- and postoperative physical therapy treatment at Valley Forge Army Hospital. The program established at this institution is presented emphasizing the use of physical therapy measures recognized for the last decade as valuable in the treatment of nontuberculosis patients undergoing thoracic surgery.[1,2] These measures include expansion of remaining lung tissue, maintenance of shoulder and scapular motion, and normal body alinement.

Upon admission to this hospital each tuberculosis patient is thoroughly oriented as to the status of his disease, the probable course of his convalescence, and the need for his full cooperation. Diagnostic tests including blood studies, urinalysis, X rays, sputum smears and cultures, and gastric cultures are completed. A conference of the medical staff of the Pulmonary Disease Service is held at which time the patient's case is completely reviewed and thoroughly evaluated. A tentative plan including all phases of diagnosis and treatment is discussed with the patient and decided upon.

Captain Hemenway, formerly Physical Therapist, Valley Forge Army Hospital, now at the U. S. Army Hospital, Fort Bragg, N. C. Major Bowen, Chief, Pulmonary Disease Clinic, Valley Forge Army Hospital, Phoenixville, Pa.

Patients with active tuberculosis are treated with various chemotherapeutic agents. These agents include streptomycin, isoniazid, para-aminosalicylic acid and others and are administered as indicated. Dependent upon varying X-ray, laboratory, and physical findings, surgery may be instituted during the course of treatment. Among the indications for surgery are nonclosure of cavities after adequate chemotherapy, removal of necrotic residuals, thoracotomy for diagnostic purposes, and decortication. Patients, generally, are continued on drugs for one year postoperatively, six months of which may be spent at home on convalescent leave or on duty with limited activity.

PREOPERATIVE ORIENTATION

If surgery is decided upon, the patient is transferred to a thoracic surgery ward where personnel are especially trained in the care of the chest surgery patient. Prior to surgery the importance of breathing exercises, maintaining shoulder and scapular motion, and correct body alinement are stressed. Since surgery is extensive, it is explained to the patient that he will have a considerable amount of discomfort, with the arm on the operated side having a feeling of "not belonging to him." It is pointed out that there will be a tendency to limit breathing and chest expansion to the unaffected side. The need for drainage tubes and suction is briefly outlined and the patient is assured that this need not limit his breathing exercises or shoulder motion.

Figure 1. Pressure expansion breathing exercises to the lower rib cage.

Figure 2. Patient grasping affected arm with opposite hand to assist shoulder motion.

Until recently it was felt that pressure expansion breathing exercises were contraindicated in cases of pulmonary tuberculosis because of the possibility of spread of the disease. With the present use of antibiotic and chemotherapeutic agents, and the surgical removal of the most important or only area of disease, Krout and Shires[3] point out that any detrimental effects of forced breathing exercises have been reduced to a minimum.

When discussing breathing exercises with the patient, it is important for him to understand exactly what is to be accomplished. In many instances the patient does not have an adequate understanding of normal chest expansion. To acquaint him with this, it is effective to have him place his hands laterally along the lower rib cage with the little fingers in line with the lower ribs. He should then inhale slowly, noting the bilateral expansion of the chest wall. Only when this is understood can unilateral expansion be instituted.

Lateral Expansion of the Lower Rib Cage

The patient places the hand opposite to the side to be operated, laterally along the lower rib cage (Fig. 1). The little finger is kept in line with the lower rib and the arm is held away from the body. Firm pressure is applied prior to inhalation. As a deep breath is taken and the lower rib cage begins to expand, the pressure is gradually released until it becomes nonexistent at the point of maximum expansion. During exhalation, the pressure is gradually reapplied. At no time does the hand leave the surface of the body. In the beginning it is beneficial for the therapist to place his hand over the patient's to assist him in the application and release of pressure. It must be remembered that repeated deep breathing may cause hyperventilation and dizziness. For this reason, exercises are repeated in groups of five only, followed by short periods of normal breathing.

Lateral Expansion of the Middle Rib Cage

The opposite hand is placed laterally along the middle rib cage just below the axilla. Pressure is again applied prior to inhalation and gradually released as the chest expands. The patient needs to be reminded that expansion of the middle chest is not so perceptible as that of the lower chest.

Elevation of the Upper Rib Cage

The opposite hand is placed high on the chest with finger tips just below the clavicle. Pressure is applied prior to inhalation and released as the upper chest elevates.

The patient is instructed to practice the breathing exercises 15 times for each area, 3 times daily. Only when mastered preoperatively can the exercise routine be adequately carried out following surgery.

Abdominal breathing is not emphasized since the objective of the breathing exercise program is to assure expansion of the lateral and upper chest to its fullest capacity.

Figure 3. Assisting chest expansion with the use of both hands.

Shoulder Exercises

Motions of the shoulder explained to the patient prior to surgery are few in number. It is important that the program of exercise be made as simple as possible to assure the patient's full cooperation. Flexion and abduction of the shoulder are of primary importance. The patient is shown how to grasp the affected arm with his opposite hand to assist in motion following surgery (Fig. 2). Since routine thoracotomy involves the latissimus dorsi, middle and lower trapezius, rhomboids, and serratus anterior, retraction and fixation of the scapula and depression of the shoulder are explained.

At this time one of the greatest fears of the patient can be minimized. He will have a feeling that the incision may separate on attempted motion of the shoulder immediately following surgery and for a day of two afterwards. He must be assured that this will not occur and be impressed that shoulder motion will prevent stiffness and additional pain from developing. When the first constricting dressing is taken away, and later when the sutures are removed, the patient may again limit his activity because of the loss of external support. By discussing these fears with the patient prior to surgery, it has been found that he is better able to carry out his exercise program during convalescence.

Figure 4. Pressure applied to middle and lower rib cage simultaneously with towel.

Body Alinement

Correct body alinement is discussed with the patient prior to surgery to avoid the postural deviation that may develop. He is asked to lie as straight as possible in bed with shoulders even and in line over the hips. One pillow will be used under his head and the affected arm will not be supported.

He is shown how to use a rope attached to the foot of his bed and for coming to a sitting position and moving about. Following surgery a rope device is helpful in changing position, sitting up for coughing, and for lowering oneself slowly onto the bed.

The use of a mimeographed brochure has been found to be helpful at this time. The brochure used at this hospital is entitled "Magoo." It contains caricature drawings and simple text to emphasize the importance of the physical therapy treatment program. The patient is asked to read it prior to surgery and to use it as a reference if necessary.

POSTOPERATIVE TREATMENT

When the patient is seen again on the first postoperative day, chest drainage tubes are in place and the patient is in a semisitting position. He is first assisted in attaining good body alinement and made as comfortable as possible. Breathing exercises are commenced in the manner already outlined and repeated 15 times for each area. If the patient has difficulty isolating the two areas of lateral expansion, pressure can first be given to the entire lateral chest wall by

the therapist's placing his hands above and below the drainage tubes (Fig. 3). X-ray studies are made at intervals following surgery to determine the amount of lung expansion.

Shoulder motions the first day are generally assistive in nature and never forced. Most patients are able to flex and abduct the affected shoulder through two thirds of full motion on the first postoperative day. However, high location of chest tubes in some patients together with constricting bandages will further limit the range of motion. Scapular adduction is begun at this time. The contraction and relaxation of the middle trepezius and rhomboids often relieve pain centered in this area. The patient is instructed to carry out breathing exercises and shoulder motion by himself two additional times daily.

If the patient starts coughing, assistance is given by applying firm pressure against the chest wall. Coughing is an important phase of his early postoperative nursing care and should be encouraged. The patient will be "coughed" hourly his first postoperative day. He is instructed to perform his deep breathing exercises to stimulate the cough reflex if he finds the coughing procedure difficult.

Lateral Expansion of the Rib Cage With the Use of a Bath Towel

Chest tubes are generally removed by the third day following surgery. Breathing exercises may then be performed with the use of a bath towel folded lengthwise and wrapped around the chest directly under the axilla. One end of the bath towel is fixed beneath the patient by his body weight. The other end of the towel is grasped by the patient with his opposite hand and drawn across the chest in such a manner that pressure is applied to the middle and lower rib cage simultaneously (Fig. 4). This becomes the key breathing exercise, replacing lateral expansion of the middle and lower rib cage separately performed, except for the occasional patient who has difficulty in expansion of one of the areas as observed by this method.

Elevation of the upper rib cage is continued as previously described.

At this time the patient is usually able to carry out shoulder exercises without assistance which may be performed in the sitting or standing position. The posture mirror is used to correct body alinement and to observe shoulder exercise.

The head of the bed may be lowered gradually and most patients should be able to tolerate a flat position by the fifth postoperative day. Exercises in the prone position are then begun stressing the use of scapular muscles.

Figure 5. Gymnasium program of exercise.

After removal of the sutures, on or about the eighth day after operation, the progress of the patient will vary considerably. The use of weights should be instituted for shoulder and scapular exercises. Raising the body from a chair to strengthen shoulder depressors is begun. Another useful exercise at this time involves the motion of closing a window with the fingertips. Maximum contraction of the shoulder depressors is obtained along with mobilization of the scar in the area of the latissimus dorsi. If limitation of motion persists, the use of an overhead pulley is helpful.

The patient is returned to his convalescent ward two weeks following surgery. At this time a gym program is instituted in a special hospital ward designated for this purpose (Fig. 5). Breathing exercises are continued until chest expansion is equal or as near to normal as possible. Progressive resistance exercise for shoulder and scapular muscles is continued until approximately six weeks after surgery or until the patient reaches normal functional activity. Most male patients are able to carry out shoulder and scapular exercises wtih 5 pound weights by the end of the second week, and with 10 pound weights by the fourth postoperative week. Female patients are generally limited to the use of 3 pound weights.

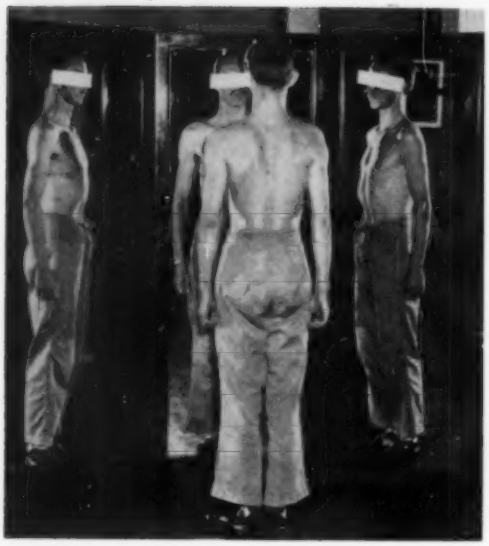


Figure 6. Posture following AP segmental resection and seven rib thoracoplasty on left.

POSTURAL DEVIATIONS

Postural deviations following surgical treatment of pulmonary tuberculosis no longer become unsightly deformities producing the "chest cripple" of previous years.

Posture and Routine Thoracotomy

Following routine thoracotomy, there is a tendency toward postural deviation which, without correction, may become a fixed deformity. Postural deviation may include: (1) head and neck tilted laterally toward the affected side, (2) shoulder carried forward and downward on the affected side, (3) hip carried high on the affected side, the weight being taken on the opposite hip, (4) flattened and inactive chest on the affected side, and (5) scoliosis.[4] It has been found that with adequate orientation prior to surgery and with observation and correction following surgery, the development of a fixed postural deformity has been eliminated.

Posture and Thoracoplasty

The postural problem following thoracoplasty is a more difficult one. Today a modified type of thoracoplasty is generally done and the postoperative complications are minimized (Fig. 6). Krout and Shires[3] point out that the transverse processes of the vertebrae need not be excised when the thoracoplasty is being done as a postresection means of collapsing an intrapleural space which is not filled by the remaining lung tissue. The first rib is resected only when necessary, thus eliminating the deformity caused by interrupted scalenus function.

SUMMARY

A physical therapy program used at Valley Forge Army Hospital over the past 18 months in conjunction with the surgical treatment of 185 patients with pulmonary tuberculosis has been described.

This program combines preoperative orientation and practice in pressure expansion breathing, shoulder, scapular, and postural exercises, and a postoperative progression of these exercises in graduated intensity.

Simplicity is stressed throughout with only those exercises considered as essential being offered. A mimeographed brochure combining caricature drawings and simple text is used to supplement instruction.

Postural deformities which may follow chest surgery have been minimized and in routine thoracotomies appear to have been eliminated at this hospital.

All illustrations are U.S. Army photographs. Courtesy of the Medical Illustration Section, Valley Forge Army Hospital.

REFERENCES

1. Winston, H. R.: Physical therapy and chest surgery. Physiotherapy Rev. 26: 227-230 (Sept.-Oct.) 1946.
2. Linduff, F. S.: Physical therapy and chest surgery. Physiotherapy Rev. 27: 94-100 (Mar.-Apr.) 1947.
3. Krout, R. M., Shires, E. B.: Physical therapy in thoracic surgery. Am. J. Phys. M. 34: 342-354 (April) 1955.
4. Veterans Administration: Physical therapy for thoracic surgery patients tuberculous and nontuberculous. VA Pamphlet 10-22. (Dec. 31) 1947.

Dues Notice

Annual dues were payable on May 1st. Your prompt response will be appreciated as a service to the Association and to insure your uninterrupted receipt of the *Physical Therapy Review* along with other membership privileges. Those who are not actively practicing physical therapy may apply for inactive membership.

*Application of Client-Centered Counseling to Clinical Teaching**

W. Scott Gehman, Ph.D.

In the process of teaching individual adult students in the clinical situation, one question which faces the supervisor is, "How can we best help the individual develop his skills and technics to a near maximum degree?" One probable answer to this question lies in promoting the development of effective understanding of himself as a person, a student, and a clinician.

A. H. Maslow [1] has made much in his writings on motivation (the why of behavior) of the desirability of promoting the level of motivation referred to as that of *self-actualization*. It is assumed that if self-actualization is realized, the individual, in our case the student clinician, will benefit tremendously, as will the society of which he is a member. The self-actualized person, according to an interpretation from Maslow [2], is basically a satisfied person who is performing with the full use and exploitation of talents, capacities, and potentialities. He is fulfilling himself and is doing the best that he is capable of doing. In addition to this, he is also performing his tasks with serenity, peace of mind, and is creative. Maslow [3] says: "From the self-actualized person we may expect the fullest and healthiest kind of creativeness, or originality, or inventiveness . . . ."

Many of our students, particularly those in advanced training programs, have been thwarted in their satisfaction of self-realization and achievement needs because of our relatively stereotyped educational programs. One of the great rewards that can come to the supervisor is that of watching the student clinician improve in his application of old skills and seeing him develop new ones when he is free to *grow* in an atmosphere of security and emotional support.

In the individual teaching situation, first comes the experience of establishing a relationship, as in counseling and psychotherapy, between the student clinician and supervisor. How can the supervisor promote the development of a relationship that will lend itself toward self-actualization of the student clinician? To answer this question in general terms, it may be helpful to draw from the philosophical and theoretical formulations of such men as Rogers,[5-6] Snygg and Combs [8] and others who are described as phenomenologists or client-centered psychotherapists. The counterpart of the principles of psychotherapy from the client-centered frame of reference may be found in the teaching process and it is my purpose to stimulate your thinking to this end.

Rogers [5] describes two basic assumptions essential to the application of the client-centered method. In paraphrased form, these same assumptions apply to the supervisor who would adopt the client-centered frame of reference to the teaching of the individual student clinician. In paraphrased form as translated from counseling and psychotherapy to teaching these assumptions are:

(1) The supervisor or teacher must recognize the individuality of the student clinician, and within limits, recognize his need for freedom to make some of his own choices in treatment methods and technics. The clinician has had considerable basic training prior to the internship and is not a novice in the application of treatment methods. He is now ready for a limited "solo" flight when he arrives for internship training. As educators, we give a great deal of lip service to the principle of individual differences and most of us would swear on a "stack of holy bibles" that we fully believe that every person is different from every other one and yet behaviorally we set out to teach them in a manner that appears to be more of a recognition of similarities rather than that of individual differences. It would seem to me that with individual student clinicians to instruct, we have a "near" ideal situation in which to apply technics in keeping with the meaning of the concept of individual differences.

(2) A second basic assumption of client-centered counseling and psychotherapy which seems to have equal importance in its application

Associate Professor of Psychology in Education, Duke University, Durham, North Carolina; Fellow of American Psychological Association.

*Presented by W. Scott Gehman at Conference of Physical Therapy Supervisors held by Physical Therapy Department, Duke University Medical Center, November 24, 1958.

to the teaching of individual student clinicians is that the student has an enormous capacity for adaptation and growth. By this, is meant that the individual student clinician possesses within himself a motive or *need* (need for self-actualization) to arrive at a more satisfactory level of achievement in applying old skills and a further need to be creative in the development of new skills as well as to improve and sharpen old ones. These needs can be released in a situation in which he is relatively free of the usual educational impediments of being told "what to do, when to do it, and how to do it."

The character of client-centered psychotherapy has been described by Rogers [5,6] and Snyder [7] and one can translate the individual characteristics from the psychotherapeutic setting to the individual teaching situation.

Some characteristics of client-centered psychotherapy are:

(1) It aims directly toward the greater independence and integration of the person rather than hoping that such results will accrue if the counselor offers a solution to the problem. The focus is on the person and not the problem. The aim is not to solve one particular problem but to assist the person to *grow* so that he can cope with the present problem and with later problems in a more highly integrated fashion. If he can gain enough integration to handle one problem in more independent, more responsible, less confused, better organized ways, then it is hoped that he will handle new problems in that manner. It relies more heavily on the individual drive or need toward mental growth, and psychological adjustment in the social milieu. Therapy from this frame of reference is not a matter of doing something to the person or of inducing him to do something about himself. It is instead a matter of freeing him for *normal* growth and development, of removing obstacles so that he can again move forward.

When one takes these characteristics and translates them from the psychotherapeutic setting to the teaching situation, one can see how these same characteristics may promote the development of self-actualization. The supervisor's belief in the drive or motive for mental growth and psychological adjustment allows for the greater independence and integration of the individual student clinician. The clinician as a person and the patient as a person become the area of concentration and not the specific technics which are being taught to the clinician. The aim would not be to teach particular individual technics, since for the most part these have been taught prior to the internship, but to assist the student clinician to grow psychologically so that he can further perfect his learning of the present technics and develop greater skills and technics in a better integrated fashion. If the student clinician can gain enough integration to master one or several technics in a more independent, more responsible, less confused, better organized way, then it is supposed that he will also handle the learning of new and more complex skills in a similar manner. As is true in therapy, teaching is not a matter of doing something to the student clinician or of inducing him to do something about himself. It is instead a matter of freeing him for *normal* educational growth and development by removing the "typical" education obstacles that were mentioned earlier so that he can continue to move forward toward a higher degree of self-actualization or self-fulfillment.

(2) Counseling from the client-centered frame of reference places greater stress upon the emotional or *feeling* aspects of the situation in addition to the emphasis upon the intellectual aspects.

In the educational process, this emphasis by the supervisor on accepting and reflecting the emotional needs of the student clinician should result in freeing the clinician for greater intellectual development. This is predicated on a well established principle that emotional disturbance can hinder learning. Thus, by meeting the emotional elements or feeling aspects of the learning situation, the student clinician's drive or need toward greater achievement is free to proceed toward greater mental growth and development.

(3) Client-centered counseling places greater stress upon the immediate situation than upon the person's past. In the individual teaching situation, the supervisor cannot rely heavily upon the student's past achievements but must consider the student clinician in the here and now, i.e., the present learning situation. This, in turn, will result in fewer negative attitudes toward the clinician in so far as what he or she should have known prior to entering the internship. If the supervisor proceeds with this point of view, the student clinician will feel less inadequate and again be free to proceed with the normal growth processes.

(4) Client-centered counseling lays stress upon the therapeutic relationship itself as a growth experience. In some other approaches, the person is expected to grow, change, or make better decisions after the psychotherapy session. From the client-centered frame of reference, the counseling session itself is considered to be a growth experience. Here the client learns to understand himself, to make significant independent choices, to

relate himself successfully to another person in a more adult fashion. Client-centered counseling is not preparation for change, it is thought to *be* change. The learning experiences of the student clinician can be interpreted in the same way, i.e., promoting change in behavior, and not merely preparation for change.

The client-centered psychotherapists hold that insight is the keystone of the process of therapy. Insight may be defined as the perception of new relationships to one's self and a fresh understanding of reality. Certainly educators give much emphasis to the need for the learner to experience insight if real learning is to take place.

How then, can the supervisor help the student clinician discover and use means of satisfying his need for self-enhancement and self-actualization? How can the supervisor help the student clinician develop to the full stature of which he is capable? As a supervisor and teacher, he can help the student clinician in the following ways:

(1) He can help provide the student clinician with the experiences and the physical resources which will make it possible for him to discover realistic and effective solutions to his personal and learning problems.

(2) He can help provide an atmosphere of acceptance in which the student clinician is free to explore his potential and to move toward a higher degree of self-actualization without fear of humiliation. In so doing, the supervisor should try to maintain an atmosphere in which the student clinician feels adequate and acceptable for the moment so that he can attend to the need for further and greater achievement. Even with failure, the student clinician needs to feel accepted in order to recognize the failure and deal with it so that he can move forward in the direction of further self-enhancement.

(3) The supervisor can act as a friendly representative of the professional society which the student clinician is expected to join in a responsible manner. As a representative of the profession, the supervisor can give the student clinician an opportunity to see himself realistically but acceptably for the time being so that further growth toward self-actualization is possible.

It has not been my purpose to suggest specific teaching technics. Certainly the technics are important but in the final analysis, the technics used by a supervisor will be determined by his self-concept, his concept of his supervisory duties, and his concept of the student clinicians.

It is my thesis that if we hope to allow for the development of more self-actualized clinicians we have much to learn from the principles of client-centered psychotherapy which can be applied to the teaching or educative process.

REFERENCES

1. Maslow, A. H.: A dynamic theory of human motivation, Psychol. Review 50: 370-396, 1943.
2. ————: Motivation and Personality, New York, Harper & Brothers, 1954.
3. ————: Self-Actualizing People: A Study of Psychological Health. Personality Symposium, No. 1. New York, Grune & Stratton, Inc., April 1950.
4. ————: Deficiency Motivation and Growth Motivation, in Nebraska Symposium on Motivation, Lincoln, U. of Nebraska Press, 1955.
5. Rogers, C. R.: Counseling and Psychotherapy, Boston, Houghton Mifflin, 1942.
6. ————: Client-Centered Therapy, Boston, Houghton Mifflin, 1951.
7. Snyder, W. U., et al.: Casebook of Non-Directive Therapy, Boston, Houghton Mifflin, 1947.
8. Snygg, Donald and Combs, A. W.: Individual Behavior, New York, Harper & Brothers, 1949.

How to Arrange to Borrow a Print of *The Return*

A complete listing of the film libraries where the Association's latest film is on deposit may be found on page 99ff. of the February, 1959, issue of the *Physical Therapy Review*. If the film library nearest you cannot supply you on the date you need *The Return*, look through the list to see if another library will service your state. National Office will send you a print if it is unavailable locally. In addition to the 38-minute version, there is a TV version running 28 minutes. There is also a 58-second TV spot with sound track, excerpted from *The Return*. Both of these are available for borrowing from the National Office. *The Return* was chosen by Howard Thompson of *The New York Times* as one of the 10 best nontheatrical films of 1958.

Case Reports

Physical Therapy for Dermatomyositis and Pulmonary Tuberculosis

Patricia McIntire, B.A.

History

A 38 year old male Negro was admitted to Brecksville VA Hospital on June 22, 1956, with a diagnosis of dermatomyositis and moderately advanced pulmonary tuberculosis which had been active since April, 1956. The patient had had a history of illness since March, 1955, when he had first noticed occasional aching and weakness of his forearms. Three weeks later he had developed a pruritic scaling dermatitis below his left knee for which he had received cortisone. By May, 1955, the patient had developed generalized muscle aching and progressive weakness. In July, 1955, rounding of the face, swelling of wrists and forearms, generalized hyperpigmentation, and exfoliation of skin were noted.

The patient was first hospitalized in August, 1955, when a muscle biopsy of the left thigh led to the diagnosis of dermatomyositis. He was treated with meticorten, cortisone, and aureomycin and was discharged after slight improvement had been noted. One month later weakness of all extremities had progressed and the patient was readmitted to the hospital. He was transferred to the VA Hospital, Cleveland, Ohio, in October, 1955, where further biopsies of the left calf and thigh revealed chronic dermatomyositis. Steroid therapy had been discontinued and was not resumed until March, 1956. This was continued in tapering doses until May, 1956, when it was again discontinued. A pneumonitis of the left upper lobe was first seen in April, 1956. When a sputum concentrate, reported on June 6, 1956, was found positive for tubercle bacillus, the patient was transferred to this hospital for further treatment of his tuberculosis and dermatomyositis.

Physical Examination

Upon admission the patient was noted to be a well developed negro male who appeared chronically ill. He was well orientated, cooperative, and expressed a great deal of optimism for his future. There was marked fullness of his face and he asserted that his skin was more deeply pigmented than previously. His extremities showed marked atrophy and weakness of all muscle groups. Range of passive motion measurements were made and revealed that the patient's elbows were flexed to 90 degrees and could not be extended. His shoulder joint motion was severely restricted and his hip and knee flexion were limited and painful. The patient had difficulty in opening his jaw and swallowing. He was unable to perform any activity independently; and complete bed care, including feeding, was necessary. The patient was able to tolerate sitting for one-half hour in a wheel chair daily.

Chief, Physical Therapy, Veterans Administration Hospital, Brecksville, Ohio.

Hospital Course

Physical therapy was prescribed on July 16, 1956, and treatment was started on the ward. Passive stretching and muscle reeducation for the trunk and all extremities were prescribed with the objective of improving the patient's functional activities as much as possible.

After two weeks the patient came to the clinic for increased activity. Trunk muscles and biceps were graded "fair." The remainder of his extremities tested "trace" to "poor+." In September, 1956, posterior plaster slabs applied with ace bandages were used to permit the patient to stand in parallel bars. The patient was able to stand approximately five minutes before he became fatigued. His balance was excellent. Muscle reeducation and active assistive exercises were continued. In performance of all exercises, muscle fatigue occurred after approximately two to three repetitions and his exercises had to be carefully graded with frequent rest periods. Following daily standing, the patient progressed until he could walk eight steps. His hip flexors and abductors were still extremely weak and the patient walked by "hip-hiking." Assistance of the physical therapist was necessary to move his left foot. In December, 1956, bilateral long leg braces with knee ring locks and 90 degree ankle stops were received and the patient began walking short distances using a walker. At this time he was still unable to perform self-care activities and two people were required to assist him to stand.

The patient's long course of physical therapy was twice interrupted when in March, 1957, a spread of the tuberculosis restricted his activity; and in August, 1957, a pulmonary infarction placed the patient on the critically ill list. Treatment was resumed in October, 1957, with mild assistive exercise done on the ward. Ambulation was continued and the patient walked with Loftstrand crutches for short distances.

By March, 1958, strength of the lower extremities improved and he performed many activities independently. He was able to walk without leg braces using Loftstand crutches for balance and stability, and was able to rise from a sitting position alone. His range of motion, lower extremities,

was normal. The patient's elbows still lacked 15 degrees of complete extension and his shoulders were restricted to 90 degrees flexion and abduction passively. All shoulder girdle muscles were still only "poor" in strength.

The patient's sputum cultures frequently were positive for tuberculosis and in August, 1958, a left upper lobectomy was scheduled for removal of the cavity. This surgery was postponed because of the appearance of diabetes in his laboratory findings. After a series of laboratory tests a successful left wedge resection was performed on Sept. 9, 1958. One week postoperatively, physical therapy was resumed. The patient made slow progress but gradually regained his preoperative strength and motion.

Although still hospitalized, this patient is slowly being promoted through the graded exercises for groups of tuberculous patients and is a Group III (semiambulatory) patient. A current muscle examination reveals marked residual weakness, but functionally he is essentially normal. He is independent in his self-care activities and walks with one cane. He can ascend and descend stairs with a rail and at this time he is typing in Educational Therapy to improve finger flexibility and strength.

During the long course of physical therapy all treatment was graded within the limits of his pulmonary disease as well as his dermatomyositis. The determination of this patient to become independent was not shaken by the extremely slow progress nor by the many complications he experienced.

Whether the patient will be able to return to his former occupation is still questionable as the prognosis is not good; relapse is probably inevitable. In spite of a poor prognosis, the efforts to rehabilitate this patient have been worthwhile as evidenced by his present level of performance.

The *Review* invites case reports from physical therapists who have followed an interesting course of treatment with or an unusual response to treatment by patients having one of the conditions listed below.

- Brachial plexus injury
- Trochanteric bursitis
- Sciatica
- Sacral plexus injury—obstetrical
- Fracture of the os calcis
- Myofascial pain in childhood
- Shoulder-hand syndrome following myocardial infarction
- Thrombophlebitis in severe poliomyelitis
- Myasthenia gravis

NOTE: Suggestions for preparation of case reports were published in the October 1957 issue of the *Review*, pages 666-667. Reprints of the suggestions may be requested by writing to the *Physical Therapy Review*.

Suggestions from the Field

A Table for Mechanically Resistive Exercise

George C. Louie, B.S.

Mechanically controlled resistance to various motions of the extremities is often desirable. This table (Fig. 1) allows the patient to start exercising when his muscles are graded as "poor." As the muscles increase in strength gradual resistance can be applied by means of the pulley system of the table.

Resistance is transmitted from weights placed in a weight receptacle which is connected to a nylon line passing over a stationary wall pulley. The line then enters the table by way of a stationary pulley at the rear of the table. Shortly after entering the pulley, the line is joined to a short bar receiving four lines coming from the pulleys on the table "wings." Four swivel type pulleys are used at the front end of the table to enable the resistance to be transmitted to the pulleys on top of the table.

The top of the table is padded with foam rubber, 1 inch thick, which extends to the portion of the table with the "wings." The foam rubber is covered with a plastic material. The remainder of the table and the "wings" are set with vinyl plastic tiles to allow for easy gliding. All pulleys used with the table have nylon sheaves for freer movements. The four pulleys on the "wings" are a sunken combing type. The "wings" can easily be lowered enabling the table to be used as a regular treatment table.

Resistance to motions of the lower extremities is accomplished by the patient lying with his feet toward the "wings." For abduction or adduction

Physical Therapist, Ukiah, Calif.; formerly, Physical Therapist, Mt. Diablo Therapy Center, Pleasant Hill, California.

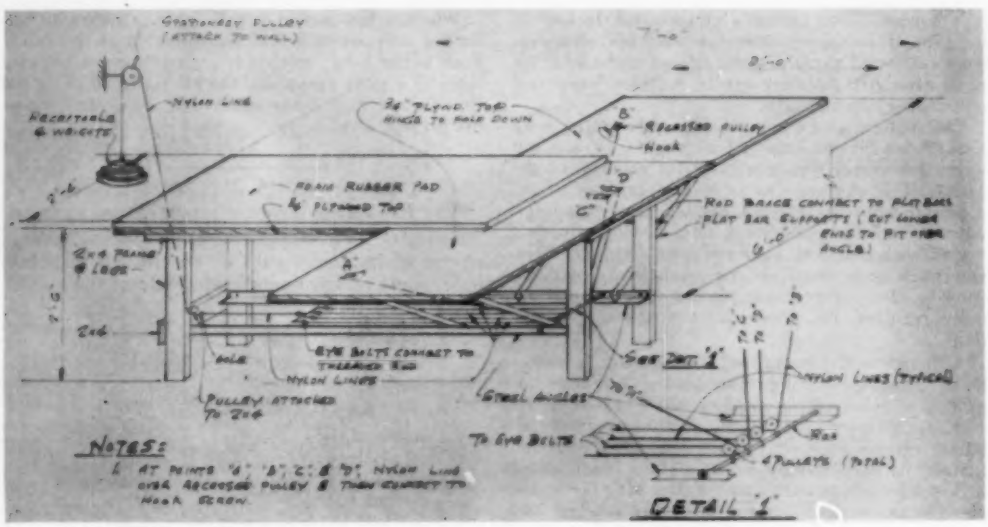


Figure 1. Table for mechanically resistive exercises.

Figure 2.

exercises of the legs the patient's ankles (or ankle depending on whether you want to exercise one or both legs) are strapped to ball-bearing type roller skates (Fig. 2). The appropriate set of lines are hooked to the skates. Resistance to the adductors is applied by using the lines on the far sides of the "wings." Resistance to the abductors is applied by using the lines coming from the center of the table. Resistance to straight leg raising is transmitted through the line from the center pulley. In a side-lying position, hip flexion and extension can be done by using the appropriate lines from the center. Resistance to knee flexion and extension can also be done in a side-lying position. In the prone position with straps on the ankles, resistance to hip extension and knee flexion is possible. In order to limit the stretch placed on any particular muscle group of the lower extremities, and thereby favoring those muscles when the patient is in a supine position, the table is constructed so that the portion of the table with the "wings" is an inch lower than the rest of the table. This allows the legs to be even with the mid-coronal line of the body when the skates are on.

Resistance to various arm motions can be accomplished for the most part by placing the head in the direction of the extensions (Fig. 3). By hooking the lines to handles resistance can be given to the various arm motions. By using the lines coming from the far sides of the "wings," adduction of the arms, internal rotation (with elbow at 90 degrees and arm abducted to 90 degrees), elbow flexion (arm abducted to 90 degrees), and cross adduction resistive exercises can be done.

By using the lines from the center of the "wings," resistance to arm thrusting for strength-

ening of the serratus anticus can be given. Resistance to elbow extension (with arms abducted to 90 degrees) is also done with the lines from the center.

Resistance to external rotation and abduction of the arms is accomplished with the patient in the position for exercising the lower extremities and using the lines coming from the center of the "wings."

The table can also be utilized for passive stretch of most of the muscle groups by reversing the procedures as mentioned in the foregoing paragraphs. Assistive exercises can be done by connecting both lines to the skates. By adjusting the tension on the lines, assistance can be given to either of the muscle groups.

The author wishes to express his appreciation to members of the staff of the Mount Diablo Therapy Center for their suggestions and to staff physical therapist, Robert Rich, for posing for the photographs.

Figure 3.

Bi-Level Homemade Bed Elevator

Margret J. Volle, B.S.

IMPROVISED EQUIPMENT AIDS FOR HOME TREATMENT

Improvised equipment serves a real purpose in supplementing the physical therapy treatment given in the home. It is often developed through a cooperative working relationship with the family—such as a suggestion from the physical therapist, which is then carried out to its completion by a family member. Some of these developments which have been used to advantage by the Milwaukee Visiting Nurse Association home service may be of interest. This is the first of several that will appear in future issues of the *Review*.

A practical, inexpensive elevator for adjusting any ordinary type of bed in the home to two convenient levels (Fig. 1) was developed by the husband of a patient being treated by the staff of the Visiting Nurse Association of Milwaukee. One attendant can easily change the bed from a 9-inch elevation to approximately floor level, with the patient in the bed. After the two locks, one at the head and one at the foot end of the bed, have been released, the operator spaces her feet midway at the side of the bed, gets in to a squatting or sitting position, then pulls or pushes the bed up or down on the diagonal slopes.

Nurse-Physical Therapist, Physical Therapy Coordinator of the Visiting Nurse Association of Milwaukee.

CONSTRUCTION

Figure 2 shows the two platforms for elevation

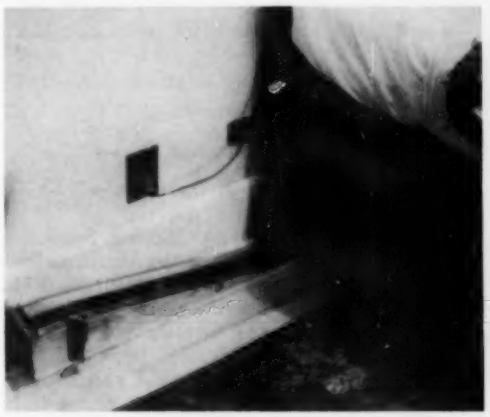


Figure 1. Showing one leg of the bed lowered from the 9 inch elevation to floor level; also, iron channel and open lock.

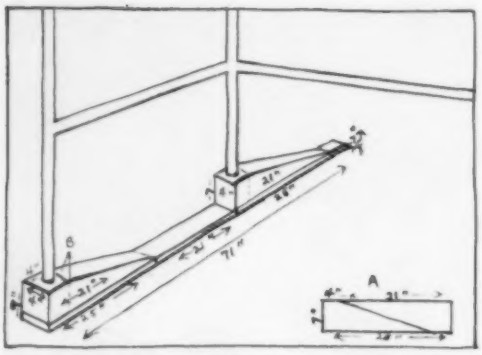


Figure 2. Bed set on elevated level.

A. Two diagonal pieces from one block of wood.
B. Site for fastening the lock to the wood block medially at the level of ½ inch cut in the channel iron.

at one end of the bed. They are spaced at a distance of 21 inches and are joined together from underneath by a long board 71 inches by 4 inches by ⅞ inch, which is securely fastened to the floor. The four platforms, two at each end of the bed, are made of two blocks of wood 25 inches long by 7 inches high by 4 inches wide, cut on a diagonal, started 4 inches from the beginning of each piece (See Fig. 2-B). The 4 inch square top surfaces at the beginning of each of the four diagonal platforms are necessary to support the four bed posts when elevated. A channel made of two strips of angle iron is fastened onto the top surface of each of the four diagonal slopes of the platforms, as pictured in figure 1. Two locks are fastened medially onto the wood block behind the head and foot posts on one side of the bed. Each lock is made of a 4½ inch movable piece of angle iron riveted onto a shorter 3 inch stationary piece of angle iron fastened together on the wood block 4 inches from its beginning, as seen in figures 1 and 2-B. At this same point (B), a cut into the channel ½ inch deep, supplies the groove into which the movable 4½ inch cross piece is dropped as a lock, thereby stabilizing the elevated bed. This ½ inch cut into the channels on all four platforms also allows for the necessary bending of the iron to permit the casters to ride down on the diagonal wood slopes. The bed rollers or casters are made of brass for added strength and are cut down to fit into the width and depth of the channel. The height of the rollers is included in the total 9 inch elevation of the bed.

All material can be purchased from a lumber yard, and a hardware store or steel company, for approximately $6.00. The possibility of this inexpensive and easily adjustable device for change in bed levels has met a long-time need in the home service by protecting the backs of those giving care and treatment, and in facilitating the transfer of the patient from bed to a chair at the same level.

The author wishes to express appreciation to Mr. Harry Buenger who developed this practical, inexpensive device for the convenience of the Milwaukee County Visiting Nurse Association in giving care and physical therapy to his wife.

Call to Former Army Physical Therapists

Attention! All physical therapists who have served in the United States Army.

The history of the Army Medical Specialist Corps is now in preparation at the Army Medical Service Historical Unit in Washington, D. C. It is planned to include in the volume a background history of the dietitians, physical and occupational therapists in the Medical Department of the United States Army during the period prior to the establishment of the corps (1917-1947). The Editor and Project Director is Harriet S. Lee, Chief of the Corps, 1954-1958.

It will be greatly appreciated if persons having in their possession material of historical interest will forward such material to the Army Medical Service Historical Unit, Attention: Special Projects Branch, Walter Reed Army Medical Center, Washington 12, D. C. These documents will be returned after duplication or filed in the Historical Unit, in accordance with the owner's wishes.

Materials particularly desired are military documents, personal letters, pictures, and records of experiences and activities in World War II, particularly those of professional significance. Similar material is also desired for the period of the corps' existence (1947 to the present). This is an attempt not only to accumulate all possible source material but also to substantiate available data.

U. S. Navy Appoints Assistant for Women's Specialist Section Officers

Rear Adm. Bartholomew W. Hogan, MC, U. S. Navy, Surgeon General and Chief, Bureau of Medicine and Surgery, U. S. Navy, recently announced the appointment of Lt. Comdr. Elizabeth O'Malley, Medical Service Corps, U. S. Navy as Assistant for Women's Specialists Section officers in the Medical Service Corps, U. S. Navy. Lieutenant Commander O'Malley will provide the Director, Medical Service Corps Division, Capt. L. J. Ellasser, MSC, USN, with professional advice and assistance in procurement, career management, and effective utilization of members of the Women's Specialists Section of the Medical Service Corps. This Section includes officers in the specialty of dietetics, physical therapy, and occupational therapy. Appointment as Assistant for Women's Specialists Section officers will be rotated periodically among selected officers in these specialties.

Lieutenant Commander O'Malley, a native of New York City, graduated from the Cochran School of Nursing, Yonkers, New York, and was commissioned in the Navy Nurse Corps in 1944. She attended New York University and was awarded a baccalaureate degree in 1949. She became a member of the American Dietetic Association in 1956. During her naval career, Lieutenant Commander O'Malley has been stationed at various hospitals throughout the United States and has served on board the Hospital Ship USS Consolation. In 1957 she was transferred from the Navy Nurse Corps to the Medical Service Corps in the specialty of dietetics. At present she is on the staff of the U. S. Naval Hospital, National Naval Medical Center, Bethesda, Maryland.

Index to Current Literature

(continued from page 378)

E. Foley, S. H. Bear, J. A. Jarman and W. R. Whitsell, Jr., J. Aviat. M., 30: 113-117, February 1959

Tempered Optimism in Rehabilitation of the Disabled Patient. Charles Long, Ohio State M. J., 55: 194-196, February 1959

RESPIRATION

Dyspnea and the Work of Breathing in Diseases of the Heart and Lungs. Malcolm B. McIlroy, Progress in Cardiovascular Diseases, 1: 284-297, February 1959

Pulmonary Function Tests and Their Clinical Applications. Charles K. Friedberg, Progress in Cardiovascular Diseases, 1: 251-267, February 1959

MISCELLANEOUS

The Perception of the Upright. Herman A. Witkin, Scientific American, 200: 51-56, February 1959

Reserve Officers of the Army Can Earn Credit in Minneapolis

The Commanding General, U. S. Continental Army Command, has approved the awarding of retirement point credits for Army Reserve Officers who attend specified sessions of the American Physical Therapy Association Conference in Minneapolis in June.

Provision will be made for Reservists to register in the lobby of the Leamington Hotel.

Military Physical Therapy Symposium
Military Section of
The American Physical Therapy Association

Military Chairman
Capt. Phyllis R. Strobel, AMSC

The following sessions, by virtue of their military educational value are included in the symposium and are authorized as military training assemblies. Reserve officers of the Army are therefore eligible to earn training and retirement point credits for attendance at the sessions indicated below providing such attendance at any session is for a period of not less than two hours and registration at each session is accomplished with the individual designated by the Commanding General to accomplish such registration. Not more than one credit can be granted for any single calendar day.

PROGRAM SESSIONS

Day Date Time

Tuesday, 23 June 1400-1700

Pain Mechanisms—Neuroanatomical and Neurophysiological

Wednesday, 24 June 1400-1700

Sequelae of Pain—Physical and Psychological Manifestations

Physical Measures for Relief of Pain—Heat, Cold, Ultrasound

Thursday, 25 June 0900-1200

Physical Measures for Relief of Pain—Electricity, Massage, Exercise

Thursday, 25 June 1400-1700

Concurrent Sessions:

Basis of Pain Associated with Certain Diseases and Injuries, including: Rheumatoid Arthritis; Soft Tissue Syndromes, including Bursitis, Fibrositis, and Myositis; Sprains, Strains and Whiplash Injuries: Fractures, Osteoarthritis, Cerebral Vascular Accidents, Low Back Disabilities; Amputations Necessitated by Disease of Peripheral Circulation

Editorial

Listening, a Vital Link

"Hear ye! Hear ye!"

So chanted the town crier in days gone by. The tone and vibrant volume of his voice carried the undeniable urgency of an important message—a message meant to be heard. Yet it was long before the familiar figure of the town crier ever strode the streets that man demanded to be heard; and through the years he has continued to assert this right with inexhaustible insistence—as witness the babble of voices so readily accessible to anyone who will listen. And ever since man realized that his vocal emissions could stimulate the aural faculties of his fellow man and thereby evoke a response, he has striven to shape and re-shape these oral sounds to make them ever more laden with meaning, impact, and power. By combining various sounds one with the other in orderly fashion, he arrived at the ultimate in oral expression—words and the arrangement thereof. As time went on, he added new words and modified old ones until, for every known shade of meaning, he found an appropriate word or group of words. Was this, then, a perfect instrument of communication? Is a message transmitted flawlessly by the speaker received with equal flawlessness by the listener? Observation tells us no! Studies support this conclusion, and we are reminded of the Psalmist who wrote, "They have ears, but they hear not."

Today, it is generally agreed that most people are not good listeners even when their intentions are good. Tests show that immediately after the average person has listened to someone talk, he remembers only about half of what he has heard—no matter how carefully he thought he was listening. Two months after listening to a talk, he will remember only about 25 per cent of what was said. How deflating to the pomposity of some speakers! If we take time to analyze subjectively what happens when we think we are listening, we would not be too surprised to note that there is a distinct tendency for our thoughts to be diverted—"the mind wanders." Abruptly, we notice that listening has ceased, so we gather our forces together and try once more. We may wonder why our hearing is often so ineffectual in spite of our best efforts at listening. This may be explained if we accept what most psychologists believe—that the basic medium of thought is language. The average American speaks at a

Editorial

rate of about 125 words a minute, much slower than the rate at which the brain is capable of functioning in the process of thinking. This differential, then, leaves us with considerable time to spare. What we do with this time may well represent our ability to listen.

Most of us have spent many years in learning to write, learning to read, learning to express ourselves through the appropriate use of words—all important links in communication. But how much time have we devoted to improving the art of listening, the final but vital link in communication? Usually, it is grossly neglected, the reason often being based on the assumption that listening ability depends on intelligence or that learning will automatically teach one to listen. However, research shows these assumptions to be false. Fortunately, listening is a skill that can be learned. A number of educators in this country, recognizing the importance of this skill, are conducting classes in the art of listening in universities, colleges, and some public schools throughout the country.

To upgrade our own skills in listening we might well consider certain findings of Nichols and Stevens at the University of Minnesota. They found that good listeners engage in four mental activities which take place concurrently with oral discourse.

"1. The listener thinks ahead of the talker, trying to anticipate what the oral discourse is leading to and what conclusions will be drawn from the words spoken at the moment.

"2. The listener weighs the evidence used by the talker to support the points he makes. 'Is the evidence valid?' the listener asks himself. 'Is it the complete evidence?'

"3. Periodically the listener reviews and mentally summarizes the points of the talk completed thus far.

"4. Throughout the talk, the listener 'listens between the lines' in search of meaning that is not put into spoken words. He pays attention to nonverbal communication (facial expressions, gestures, tone of voice) to see if it adds meaning to the spoken words. 'Is the talker purposely skirting some area of the subject? Why is he doing so?' " *

There is still another barrier of communication which is directly related to the listener. Let us suppose that a speaker has an idea with which he hopes to stimulate, and possibly influence, the thinking of the listener. The speaker, we will assume, is articulate in every respect. The transmitting station, therefore sends out a clear, well-defined message. But we find that when the message arrives at the receiving station, it is distorted and no longer represents the meaning which the speaker sought to convey. The blame for such faulty reception has been placed on so-called "emotional filters." Fragments of the message which do not coincide with the listener's beliefs are repelled, whereas those which support his beliefs are allowed free, uninterrupted passage, often being subjected to a process of magnification which further distorts the picture. Sometimes the listener is so gleefully preoccupied in pursuit of a dazzling reply that the

* Nichols, Ralph G., and Stevens, Leonard, A.: Listening to People. Harvard Business Review, 38: 85-92 (Sept.-Oct.) 1957.

Editorial

neglected filtering system becomes almost completely blocked and only a minutia of unrelated fragments are permitted to trickle through. This is the person who might say emphatically and resolutely, "I don't believe in this," but if the reason for such belief were to be probed by the searching light of knowledge and truth, its vulnerability would be immediately evident.

By excluding selected areas of incoming communication, the listener allows himself to continue revelling in his familiar, time-worn and comfortable thought processes. However, in life situations, he is rarely able to compete with those who recognize and effectively deal with these barriers which have been imposed on listening by past experiences and teachings. He is further depriving himself of the excitement and exhilaration to be found in the exploration of uncharted labyrinths of thought.

Recognition of these obstructions to listening is the first step toward improving our listening habits and, subsequently, strengthening the thinking process. Dr. Carl Rogers, the renowned psychologist, believes that to achieve the other speaker's frame of reference while listening to him talk, to understand his thoughts and feelings so well that one could summarize them to the speaker's satisfaction, is an effective avenue to good communication and good relationships. He also points out that to do this one runs the risk of being changed. Change, however, is often frightening and many of us lack the courage to face the prospect of a change which might ensue were we to accept free and open lines of communication.

A brief consideration of the working day of a physical therapist is all that is needed to make one aware of the extensive role that listening plays in the course of a day's activities. The physical therapist has a responsibility to understand the intricacies of his job, to know and practice his professional skills, to work well with others, and to contribute his best to the profession. All these functions involve listening, and to perform them at the highest level of his capabilities, the physical therapist must know how to listen—to the doctor, to his supervisors, to his associates and, above all, he must know how to listen to the patient.

May we suggest the APTA Conference this year as a good starting point from which to give thought and consideration to the art of listening?

BARBARA F. FRIZ, *Chairman*
Editorial Board

American Hospital Association Institute for Physical Therapists

The Sixth Annual Institute for Physical Therapists sponsored by the American Hospital Association is to be held in Houston, Texas, from November 9 through 13, 1959. The Texas Chapter of the American Physical Therapy Association has appointed a planning committee of six members who have met with representatives of the American Hospital Association and the National Office of the APTA.

The Institute will include sections on hospital organization, medical records, medical-legal and financial implications, disaster planning, as well as discussions on responsibilities in staffing and interrelationships within the hospital.

Announcement of the Institute will be mailed to all active members of the APTA. Discuss this opportunity with your administrator and send your request for enrollment in the Institute promptly.

Association News

Mrs. A. Margaret Erikson of Gainesville, Florida, died recently. Mrs. Erikson received her education at Boston University, Sargent College and graduated in 1945. A member of the Association since 1945, Mrs. Erikson had been a member of the Massachusetts Chapter and, at the time of her death, was the Treasurer for the Northeastern District, Florida Chapter.

Members' Publications

Sarah Semans, Instructor in Physical Therapy, School of Medicine, Stanford University, is author of "Physical Therapy for Motor Disorders Resulting from Brain Damage" which appeared in *Rehabilitation Literature* published by the National Society for Crippled Children and Adults. Reprints are available at a cost of 25 cents each and may be ordered from the Society, 2023 West Ogden Avenue, Chicago 12, Illinois.

Chapter News

Oregon — Northern District

Recent District meeting topics included: Pathology, Diagnosis, and Treatment of Lumbar Root Compression Ailments; Relationship of Physical Therapy to Psychiatric Problems; and Rheumatoid Arthritis and Related Collagen Diseases.

Vermont

At the February Chapter meeting a discussion presented by a chapter member was titled "Treatment of Hands."

Washington State

"The Hemiplegic Patient" was the symposium topic at the March chapter meeting. Program participants at the one day meeting included physicians and representatives of paramedical groups.

Earlier this year three Chapter members participated, by invitation, in a King County Multiple Sclerosis Association executive committee meeting for the purpose of orienting the committee members to the educational qualifications and professional affiliations of qualified physical therapists. In January at a King County Nurses' Association disaster program, 10 members presented the technics of moving and lifting patients.

Marriages

Rheta C. Adams, of Philadelphia, Pa., now Mrs. Rheta A. Weidenbacker, Philadelphia.
Gail Barrand, of Milwaukee, Wis., now Mrs. Gail B. Koehler, Milwaukee.
Helen Bouman, of Philadelphia, to Lester [illegible]owitz, Bloomfield, N. J.
Nancy Brinker, of Denver, Colo., to R. G. B. Marsh, Greeley, Colo.
Marguerite Carusone, of Saratoga Springs, N. Y., to Julian Estrada, Saratoga Springs.
Catherine Curry, of Denver, Colo., now Mrs. Catherine C. Branch, Denver.
Carol Gonring, of Milwaukee, Wis., now Mrs. Carol G. Rohringer, Goettingen, Germany.
Carol Harmon, of S. Euclid, Ohio, to Jean Beland, Three Rivers, Quebec, Canada.
Beverly Harwood, of Danielson, Conn., to Robert Shea, Wilkinsburg, Pa.
Beverly Hiney, of West Roxbury, Mass., to John Farrington, West Roxbury.
Sally T. Hood, of Pittsburgh, Pa., now Mrs. Sally H. McIlvried, Pittsburgh.
Ilse Koschmieder, of Portland, Ore., now Mrs. Ilse K. Hildman, Portland.
Patricia Krueger, of Burlingame, Calif., to Oran Arms, Sacramento, Calif.
Margaret McCall, of Saskatchewan, Canada, now Mrs. Margaret M. Alkan, St. Paul, Minn.
Elizabeth McClusky, of Dallas, Tex., now Mrs. Elizabeth M. Manilla, Dallas.
Helen W. Miles, of Jacksonville, Fla., now Mrs. Helen M. Beals, Kingsville, Tex.
Barbara L. Mitchell, of West Haverstraw, N. Y., now Mrs. Barbara M. Noden, Miami, Fla.
Patricia Payne, of Vallejo, Calif., now Mrs. Patricia P. Bush, Vallejo.
Faye P. Reed, of Polo, Ill., to Harold Greer, Polo.
Ruth Slade of Rock Hill, Conn., now Mrs. Ruth S. Smith, Newington, Conn.
Holly Stees, of Lansdale, Pa., to John A. Doppel, Telford, Pa.
Mary M. Swanson, of Pittsfield, Mass., now Mrs. Mary S. Kelley, New Lebanon, N. Y.
Jill Wagner, of Worcester, Mass., to Donald Taylor, Worcester.
Marilyn Wald, of Chicago, Ill., to Gerald Laros, Dwight, Ill.
Jean L. Wiley, of Wilmington, Dela., to Eugene R. Beard, Kennett Square, Pa.
Doris A. Williams, of Pittsburgh, Pa., now Mrs. Doris W. Hamilton, Pittsburgh.
Donna Winters, of San Francisco, Calif., now Mrs. Donna W. Schottaedt, San Francisco.
Marion P. Wood, of White Plains, N. Y., to C. Michael Margetts, Salt Lake City, Utah.

CONFERENCE · 1959

Minneapolis • June 21-26 • Hotel Leamington

Business Meetings and Program Schedule

June 17, 18, 19 and 20 — **Board of Directors Meetings**

Sunday, June 21

9:00 A.M. — 5:00 P.M.
Section on Education
Self Employed Section
Public Health Section

5:00 P.M. — 10:00 P.M.
Tivoli—Minnesota Chapter, Host
Smorgasbord
Square Dancing

Monday, June 22

9:00 A.M. — 5:00 P.M. — **General Registration**

9:00 A.M. — 12:00 Noon — **Delegates' Registration**

10:00 A.M. — 12:00 Noon
Group Meetings—Arthritis and Rheumatism Foundation, Crippled Children's Societies, Research Group, Schools for Physically Handicapped Children, State Examining Committees, Veterans Administration

2:00 P.M. — 5:00 P.M.
Opening Session—Greetings, President's Address
Greetings, Frank H. Krusen, M.D., Senior Consultant, Section of Physical Medicine and Rehabilitation, Mayo Clinic
IMPASSE IS NOT THE SOLUTION TO THESE EDUCATIONAL DILEMMAS, Stanley Wenburg, Assistant to the President, University of Minnesota

7:00 P.M. — 10:00 P.M. — **Film Theater**

7:30 P.M. — 9:30 P.M — Discussion of Proposed Amendments to Bylaws

Tuesday, June 23

9:00 A.M. — 12:00 NOON — **House of Delegates**

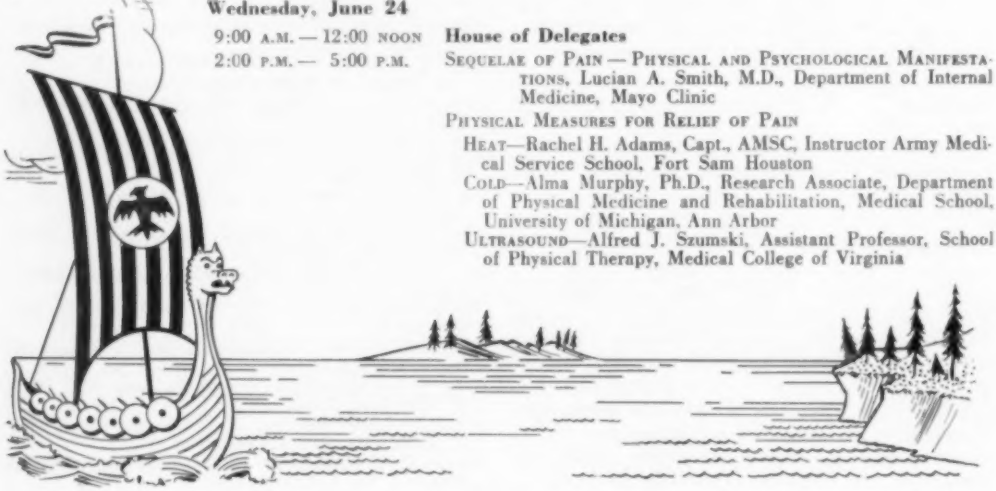
2:00 P.M. — 5:00 P.M.
PAIN MECHANISMS — NEUROANATOMICAL AND NEUROPHYSIOLOGICAL, Ian A. Brown, M.D., and Harris G. Bernhisel, M.D. Associates in Clinical Neurology, Minnesota Neurological Clinic, St. Paul.

7:00 P.M. — 10:00 P.M. — **Film Theater**

Wednesday, June 24

9:00 A.M. — 12:00 NOON — **House of Delegates**

2:00 P.M. — 5:00 P.M.
SEQUELAE OF PAIN — PHYSICAL AND PSYCHOLOGICAL MANIFESTATIONS, Lucian A. Smith, M.D., Department of Internal Medicine, Mayo Clinic
PHYSICAL MEASURES FOR RELIEF OF PAIN
HEAT—Rachel H. Adams, Capt., AMSC, Instructor Army Medical Service School, Fort Sam Houston
COLD—Alma Murphy, Ph.D., Research Associate, Department of Physical Medicine and Rehabilitation, Medical School, University of Michigan, Ann Arbor
ULTRASOUND—Alfred J. Szumski, Assistant Professor, School of Physical Therapy, Medical College of Virginia



6:00 P.M. — 7:00 P.M. Reception for Board of Directors

7:30 P.M. **Annual Banquet**

Thursday, June 25

9:00 A.M. — 12:00 NOON PHYSICAL MEASURES FOR RELIEF OF PAIN

ELECTRICITY—Gloria Brawley, Assistant Professor of Physical Therapy, Boston University, Sargent College

MASSAGE—Miriam Jacobs, Instructor, D. T. Watson School of Physiatrics, Leetsdale, Pa.

EXERCISE—Helen Hislop, Teaching Fellow of The National Foundation, Department of Physiology, University of Iowa

11:00 A.M.—12:00 NOON *Concurrent Sessions*—Original Papers

Session A

THE USE OF THE PURSED LIP TECHNIC IN ABDOMINAL BREATHING EXERCISES FOR PULMONARY EMPHYSEMA, Harold J. Egli, Chief Physical Therapist; Charles A. Laubach, M.D.; and Valentine F. Pytke, M.D.; George Geisinger Memorial Hospital, The Foss Clinic, Danville, Pa.

METHODS OF HEATING THE HIP JOINT, George D. Brunner, Head, Division of Physical Therapy, Department of Physical Medicine and Rehabilitation, University of Washington School of Medicine, Seattle

THE FUNCTION OF THE ABDOMINAL MUSCLES IN MAN: AN ELECTROMYOGRAPHIC STUDY, Miriam J. Partridge, Supervisor, Physical Therapy Research, Texas Institute for Rehabilitation and Research, Houston

Session B

ELECTROMYOGRAPHIC KINESIOLOGY OF THE HAND: PRELIMINARY REPORT, Mary Eleanor Brown, Chief Research Associate, and Charles Long, M.D., Principal Investigator, Department of Physical Medicine and Rehabilitation, Highland View Cuyahoga County Hospital, Cleveland

PARALYSIS OF THE SHOULDER SUBSEQUENT TO A COMMUNITED FRACTURE OF THE SCAPULA—RATIONALE OF TREATMENT METHODS, Rachel L. Nunley, Instructor, Section of Physical Therapy, School of Medicine, University of North Carolina; and Sara J. Bedini, Staff Physical Therapist, Department of Physical Therapy, North Carolina Memorial Hospital, Chapel Hill

2:00 P.M. — 5:00 P.M. *Concurrent Sessions*—Physicians will discuss the basis of pain associated with certain diseases and injuries; physical therapists will present case reports.

Session A

RHEUMATOID ARTHRITIS, Paul D. Bilka, M.D., Assistant Clinical Professor of Medicine, University of Minnesota School of Medicine

CASE REPORTS:

Margaret Corbin, Chief Physical Therapist, Mary Fletcher Hospital, Burlington, Vermont

Esther Day, Capt., AMSC, Physical Therapy Section, Walter Reed Army Hospital

Marjorie Ionta, Supervisor, Department of Physical Therapy, Massachusetts General Hospital, Boston

Session B

SOFT TISSUE SYNDROMES INCLUDING BURSITIS, FIBROSITIS AND MYOSITIS, Glenn Gullickson, M.D., Assistant Director, University of Minnesota Rehabilitation Center

CASE REPORTS:

Kenneth Brown, Chief Physical Therapist, Ball Memorial Hospital, Muncie

Emilie Hines, Chief Physical Therapist, Los Alamos Medical Center, Los Alamos, New Mexico

Lola Smith, Chief Physical Therapist, Physicians' Office, New Orleans

Session C

SPRAINS, STRAINS AND WHIPLASH INJURIES, Gordon Martin, M.D., Consultant in Physical Medicine and Rehabilitation, Mayo Clinic; and Associate Professor, Mayo Foundation, University of Minnesota Graduate School

CASE REPORTS:

Robert Maul, Chief Physical Therapist, Methodist Hospital, Lubbock, Texas

Leo Morrissey, Director, Physical Therapy Department, Mercy Hospital, Cedar Rapids, Iowa

Anne Pascasio, Chief Physical Therapist, Department of Physical Medicine, Hospital of the University of Pennsylvania

Session D

FRACTURES, Paul M. Arneson, M.D., Instructor of Orthopedic Surgery and Physical Medicine and Rehabilitation, University of Minnesota

CASE REPORTS:

Jack Gamet, Physical Therapist, Roseburg City Hospitals, Roseburg, Oregon
Martha Wroe, Physical Therapist to Orthopedic Surgeons, Kansas City, Missouri

Session E

OSTEOARTHRITIS, Kenath Sponsel, M.D., Orthopedic Consultant, Cambridge State School and Hospital

CASE REPORTS:

Ivan Kline, Chief Physical Therapist, Baptist Memorial Hospital, Jacksonville, Florida
Raymond Nordquist, Assistant Chief, Department of Physical Therapy, Highland View Hospital, Cleveland
E. Maurine Rathje, Physical Therapist, Holy Cross Hospital, Salt Lake City

Session F

CEREBRAL VASCULAR ACCIDENTS, Lyle French, M.D., Professor of Neurological Surgery, University of Minnesota School of Medicine

CASE REPORTS:

Jack Hofkosh, Supervisor, Department of Physical Therapy, Institute of Physical Medicine and Rehabilitation, New York University—Bellevue Medical Center
Margaret McFarlane, Physical Therapist, Rehabilitation Education Project, State of Washington Department of Health
Wayne Perdue, Technical Director of Physical Medicine and Rehabilitation, Nebraska Methodist Hospital, Omaha

Session G

LOW BACK DISABILITIES, John H. Moe, M.D., Clinical Professor and Director of Orthopedic Surgery, University of Minnesota School of Medicine

CASE REPORTS:

Elizabeth Fowler, Major, AMSC, Letterman Army Hospital, San Francisco
Mike Kumpuris, Chief Physical Therapist, St. Vincent's Hospital, Little Rock
Margaret Sexton, Chief Physical Therapist, Department of Physical Medicine and Rehabilitation, D. C. General Hospital, Washington, D. C.

Session H

AMPUTATION NECESSITATED BY DISEASES OF PERIPHERAL CIRCULATION, Davitt Felder, M.D., Clinical Associate Professor of Surgery, University of Minnesota School of Medicine

CASE REPORTS:

Mary McDonnell, Chief Physical Therapist, Rehabilitation Center, Inc., Louisville
Richard V. McDougall, Chief Physical Therapist, John J. Kane Hospital, Pittsburgh
Marian McLenahan, Supervising Physical Therapist, Monroe County Health Department, Rochester, New York.

Friday, June 26

9:00 A.M. — 12:00 Noon	Chapter Workshops
10:30 A.M. — 5:00 P.M.	Program-Tour to Mayo Clinic, Rochester
2:00 P.M. — 5:00 P.M.	Program-Tours to University of Minnesota Hospitals, Elizabeth Kenny Institute, Minneapolis; St. Johns Hospital, St. Paul

Conference Facts

Hotel

Gracious hospitality at the Hotel Leamington, finest in the Upper Mid-West.

Rates

Single Rooms	$ 8.00 to $12.00
Double Bedded Rooms for Two	$10.00 to $13.00
Twin Bedrooms	$11.50 to $18.00
Suites	$16.00 to $45.00

All rooms have combination tub and shower. For each additional person in a double or twin bedroom there is an extra charge of $3.00 a day. Air conditioned rooms are available upon request at $1.00 more per day.

Hotel Reservations

Reservations should be sent to the Hotel Leamington not later than two weeks prior to the Conference. For your convenience a reservation card will be included in your dues notice. The Hotel will acknowledge reservations at the nearest available rate if a room at the rate requested is not available. Persons planning to room together should send in only one reservation listing number of persons sharing accommodations. *Note*: Reservations received after all sleeping rooms in the Leamington have been taken will be assigned automatically to the adjacent Curtis Hotel.

Registration

Active, Inactive and Foreign Probationary Members $6.00

Student Members	$2.00
Nonmember Physical Therapy Students	$4.00
Nonmember Graduates of Approved Schools	$15.00
Members of Physical Therapy Organizations affiliated with the World Confederation for Physical Therapy:	
Visitors	$6.00
Residents of this country	$15.00

Nonmembers will be required to present credentials.

For the convenience of all, members are requested to register in *advance*. Otherwise, you *must* present your membership card at the Conference registration desk.

Allied professional persons are invited to attend by presentation of credentials and at a courtesy fee of $2.00

Complimentary registration is cordially extended to physicians and administrators upon presentation of credentials.

Exhibits

Applications for commercial exhibit space should be directed to Gordon M. Marshall, 30 West Washington Street, Chicago 2. Scientific exhibits are accepted and assigned by the American Physical Therapy Association.

Social Events

TIVOLI! Fun and frolic on Sunday evening with Smorgasbord, an international dance performance, and good old-fashioned square dancing for all. The Annual Banquet on Wednesday evening will be the entertainment highlight of Conference week. Current plans include a musical production by the famed Schieks Sextet of Minneapolis. Register in advance and take advantage of the reduced price of $10.50 by purchasing tickets for both events. If purchased separately prices are: Banquet $7.00; Smorgasbord $5.00

Program Tours

Elizabeth Kenny Institute

"Rehabilitation of the Hemiplegic Patient" will be discussed by members of the staff of the Elizabeth Kenny Institute from 2:00 P.M. to 5:00 P.M. on Friday, June 26. Subjects will include Neurology and Medicine, Psycho-social and Vocational Services, Setting Rehabilitation Goals, Plan of Treatment, Nursing, Occupational Therapy, and Physical Therapy.

Participants will be Miland Knapp, M.D., Director of Physical Medicine and Rehabilitation; Paul Elwood, M.D., Medical Administrator; Dawes Miller, M.D., Internist; Ann Olsen, Speech Pathologist; Josephine A. Poehler, Director of Social Services; Vernon Schultz, Director of Vocational Rehabilitation; Catherine Haas, Clinical Instructor, Rehabilitation Nursing; Norma Steinke, Chief Occupational Therapist; and JoAnn Battaglia, Chief Physical Therapist.

The program to be held has been arranged by Miland Knapp, M.D., Director of Physical Medicine and Rehabilitation at the Institute.

Mayo Clinic

A special tour of the Mayo Clinic will be conducted on Friday morning, June 26, beginning at 10:30 A.M. On Friday afternoon, from 2:00 to 5:00 P.M. a program, "Muscle Transfers in the Upper and Lower Extremities," will be presented. Participants will be Edward Henderson, M.D., Consultant on Orthopedic Surgery; Earl C. Elkins, M.D., Head of Section on Physical Medicine and Rehabilitation; Esther Swartz, President of Southern Minnesota Chapter of the American Physical Therapy Association; and Ruth Ryan, Physical Therapist. Demonstrations of muscle reeducation and exercise technics will be shown on patients.

The program to be held has been arranged by Earl Elkins, M.D., Head of Section on Physical Medicine and Rehabilitation at the Mayo Clinic.

University of Minnesota Hospitals

On Friday afternoon, June 26, from 2:00 P.M. to 5:00 P.M. the following series of demonstrations of research activities at the Rehabilitation Center of the University of Minnesota Hospitals will be presented.

Studies of Cardiac Output During Rehabilitation Activities. William G. Kubicek, Ph.D., Mildred E. Olson and Ruth Hultkrans, Occupational Therapist.

Evaluation of Circulatory Problems. Victor Gilbertson and Jeannine Legler.

Electromyographic and Electroneurographic Evaluation. Herbert Schoening, M.D. and Walter Stolov, M.D.

Research in Audiology. Frank Lassman, Ph.D.

Evaluation of the Parameters of Ischemic Ulcer Formation. Michael Kosiak, M.D.

The review of research has been planned by Frederic J. Kottke, M.D., Professor and Head of the Department of Physical Medicine and Rehabilitation.

St. Johns Hospital

"Progressive Patient Care" will be presented by members of the staff at St. Johns Hospital on Friday afternoon, June 26, from 2:00 to 5:00 P.M.

The coordinated approach to patient care in its various phases will be presented by members of the medical staff, nursing service, occupational therapy and physical therapy departments.

Patient demonstrations, movies, slides, along with case histories will be used to indicate the role of physical therapy in a progressive patient care program.

Participants will include Mr. Carl Avé Lallemant, Administrator; Bernard Hall, M.D., Chief of Medical Staff; John Strand, M.D., Chairman of Physical Medicine and Rehabilitation Committee; Jacqueline Metcalf, Director of Nursing Services; Delores Meehan, Extended Care Supervisor; Evelyne Eichler, Registered Occupational Therapist; and Sarah Gruss, Head Physical Therapist. The program will include:

Special Care	Thoracotomy Patient
General Care	Burn Case
Rehabilitation	Cerebral Vascular Accident Case
Minimal Care	Bursitis Case
Extended Care	Arthritic Patient

A tour of the recently expanded department, with special emphasis on new equipment and procedures, will follow the formal presentation.

Physical Therapy Week in Minnesota

On March 17, 1959, the Honorable Orville L. Freeman, Governor of the State of Minnesota, proclaimed the week of June 21-26, 1959, as "Physical Therapy Week" in Minnesota. The proclamation which bears the Great Seal of the State of Minnesota along with Governor Freeman's signature was also attested and signed by Joseph L. Donovan, Secretary of State. The proclamation reads as follows:

WHEREAS, Physical therapy is a medical service devoted to the return of the ill and the handicapped to a constructive life; and

WHEREAS, Minnesota in 1958 had a ratio of one physical therapist for each 26,000 persons and the national average is one per 22,000 population; and

WHEREAS, Many of the health needs of the people can be met through the development and utilization of the professional groups allied with physicians in medical care; and

WHEREAS, The American Physical Therapy Association has since 1921 fostered the development and improvement of physical therapy service and physical therapy education, and has made a concerted effort throughout the United States to meet the ever increasing demand for personnel; and

WHEREAS, The Minnesota Chapter of the American Physical Therapy Association will be host to the 36th Annual Conference of the Association;

NOW, THEREFORE, I, Orville L. Freeman, Governor of the State of Minnesota, do hereby proclaim the week of June 21 through June 26, 1959, as "Physical Therapy Week" in Minnesota.

Minneapolis Social Events

Tivoli — Smorgasbord — Square Dance

36th Annual Banquet

If you are going to Paris, do prepare by coming to Minneapolis! If you are not going to travel abroad, our 36th Conference is a "must!"

An international atmosphere will prevail on Sunday evening, June 21, when members gather for "Skol! Prosit! Cheers!" at Tivoli. To those who haven't visited Denmark, Tivoli in Copenhagen is a delightful spot—amusements, smorgasbord, dancing, music—but the Minnesota Chapter has plans, Paul Bunyan-sized, to give you a great variety of fun at Tivoli in the Hotel Leamington. The influence of the Vikings and the Nordic people has held sway in Minnesota for generations; but today the influence of Southern European groups is there, too. All of this supports the theme for the opening gala affair—a truly international evening—and informal!

Minnesota Chapter will be your host during "Skol! Prosit! Cheers!" and an International Dance Group will provide entertainment. Complete and replete with delicacies from all countries, the smorgasbord will appease your appetites from 7:00 P.M. to 9:00 P.M. At 9:00 P.M. square dancing will begin—no need to practice! The "caller" will be an expert and will "make it simple!" So wear your blouses and skirts, slacks and shirts, dungarees or whatever and join the whirl.

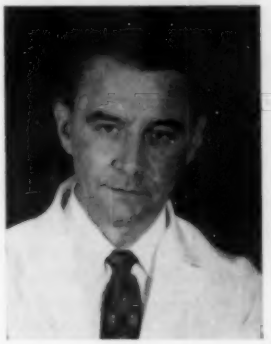
These combined social events will be the equivalent of Washington State Chapter's Explorers' Potlatch and the Salmon Bar-B-Q in Seattle last June. Two-in-one, three-in-one, it's all available to you in one evening at the Leamington where a smorgasbord "specialist" from Norway has recently joined the staff!

On Wednesday evening our 36th Annual Banquet will be preceded by the Reception for the Board of Directors in keeping with the tradition of our Association. To entertain you in the Town Hall of the Leamington, the Minnesota Chapter is negotiating with a sextette which is known throughout the area and the country for the brilliant entertainment it provides at a famous Minneapolis restaurant. Also during the Banquet, our members will be honored to receive greetings from Miss G. V. M. Griffin, President of the World Confederation for Physical Therapy. Miss Griffin will return to England shortly after our Conference—then on to Paris!

Again, as in Seattle, these wonderful evenings will be available for a combined rate of $10.50. Minnesota Chapter wants you to enjoy Tivoli—Minnesota members are your hosts! Send your checks and reservation forms now, for Tivoli, Smorgasbord, Square Dance, and the Annual Banquet will give you two evenings of fun, fanfare, and frolic!

Conference Speakers

Capt. Rachel H. Adams, AMSC, is an Instructor, Physical Medicine Branch, Army Medical Service School, Fort Sam Houston, Texas. A graduate of the University of New Hampshire, Captain Adams received the physical therapy certificate at Ashford General Hospital in 1946, and was awarded the master of arts degree by the University of Southern California in 1955. Other than service with the AMSC, Captain Adams' physical therapy experience includes positions at the California Rehabilitation Center, Santa Monica; and Portsmouth Rehabilitation Center, Portsmouth, New Hampshire. Captain Adams is a member of Phi Sigma Biological Society in addition to professional memberships. During the Wednesday afternoon session on Physical Measures for the Relief of Pain, Captain Adams will discuss the subject of "Heat and Pain."



Lyle A. French, M.D., Professor of Neurological Surgery, University of Minnesota, holds concurrent staff appointments at the University of Minnesota Hospitals. The degrees of doctor of medicine, master of science in neurological surgery, and doctor of philosophy in neurological surgery have been conferred upon Dr. French by the University of Minnesota. As a member of the U. S. Army, he served as a Major in the Medical Corps. His membership in professional organizations include: American Medical Association, American Academy of Neurological Surgery, American Academy of Neurology, Harvey Cushing Society, Neurosurgical Society of America and Society of Neurological Surgeons. He is credited with over 80 publications on neurological surgery subjects including pain, brain and spinal cord tumors, and vascular lesions. Dr. French will speak during the Thursday afternoon session of Conference. His subject will be "Neurosurgical Procedures Used To Relieve Pain."

John H. Moe, M.D., is a graduate of the University of North Dakota and in 1930 was awarded the doctor of medicine degree by Northwestern University Medical School. Dr. Moe, a Diplomate of the American Board of Orthopedic Surgeons, is Professor and Director of the Department of Orthopedic Surgery, University of Minnesota. Presently serving as Chief of Staff, Gillette State Hospital, St. Paul. Dr. Moe is also

a member of the attending staff at Fairview Hospital, St. Barnabas Hospital, and Northwestern Hospital; and is a Consultant to St. Mary's Hospital and Minneapolis General Hospital. Among Dr. Moe's affiliations with professional organizations are memberships in the American Orthopedic Association, American Academy of Orthopedic Surgeons, Pan Pacific Surgical Association, Chicago Orthopedic Society, and the International College of Surgeons. The author and contributing author of numerous articles and textbooks, Dr. Moe has published several articles related to his subject during the Thursday afternoon session, "Low Back Pain."

Paul M. Arnesen, M.D., holds an appointment as Instructor in the Department of Physical Medicine and also in the Department of Surgery, Division of Orthopedics, at the University of Minnesota. A graduate of New York University, Dr. Arnesen received the degrees of bachelor of arts (1943) and doctor of medicine (1947). He attended Columbia University and later served with the U. S. Navy from 1943-1945 and 1949-1951. Dr. Arnesen previously was in private practice in Fond du Lac, Wisconsin, where he specialized in orthopedic surgery. On Thursday afternoon Dr. Arnesen will speak on "Pain Resulting from Fractures and Their Treatment."

Alma J. Murphy, Ph.D., Research Associate, Department of Physical Medicine and Rehabilitation, Medical School, University of Michigan, is a graduate of Miami University. She received the certificate in physical therapy at the State University of Iowa in 1944 and was awarded the master of science degree in physical therapy and the doctoral degree in physiology from the State University of Iowa as well. Dr. Murphy is a member of Sigma Xi and Kappa Delta Pi, both honorary societies. Previous to her present appointment Dr. Murphy was a member of the staff of Detroit Memorial Hospital and had served with the U. S. Army Medical Specialist Corps, 1944-46. She is the author of several articles published in the *Archives of Physical Medicine and Rehabilitation*. An article reporting "A Comparative Study of the Temperature Changes" is most closely related to Dr. Murphy's topic which will be "Physiological Effects of Cold Applications for the Relief of Pain."

Lucian A. Smith, M.D., is Head of the Section of Internal Medicine, Mayo Clinic, Rochester, Minnesota. A graduate of Wabash College, Dr. Smith received his medical education at Rush Medical College and received the master of science degree in medicine in 1939 at the Mayo Foundation of the University of Minnesota. In 1946 Dr. Smith terminated three years of service with the Army Medical Corps having achieved the rank of Major. Dr. Smith is a Fellow, American College of Physicians; Diplomate, American Board of Internal Medicine; and active member, American Gastroenterological Association. Dr. Smith will discuss the sequelae of pain, physical and psychological manifestations, during the Wednesday afternoon scientific session.

Kenath Herrick Sponsel, M.D., received the bachelor of science degree in anatomy at the University of Chicago in 1941 and subsequently was awarded the doctor of medicine degree in 1943. An orthopedic surgeon in private practice, Dr. Sponsel serves as Orthopedic Consultant, Cambridge State School and Hospital, and the Northwest Industrial Clinic, Minneapolis. He is currently serving on the Minnesota State Board of Medical Examiners' State Examining Committee for Physical Therapists. Dr. Sponsel's previous appointments include that of Clinical Assistant Professor of Surgery, Division of Orthopedic Surgery, University of Minnesota. From 1943 to 1947 Dr. Sponsel served in the Army Medical Corps as Assistant Chief and Chief of the orthopedic services in several Army hospitals holding the rank of Major upon leaving the service. A Diplomate of the American Board of Orthopedic Surgery, Dr. Sponsel holds membership in nine professional societies including the American Congress of Physical Medicine and Rehabilitation. The author of numerous scientific articles, Dr. Sponsel will discuss pain associated with osteoarthritis during the Thursday afternoon session.

Gloria M. Brawley is Assistant Professor of Physical Therapy, Boston University, Sargent College. A graduate of Xavier University Miss Brawley received the certificate in physical therapy from Columbia University and the master of arts degree at the University of Southern California. Miss Brawley's physical therapy experience includes a poliomyelitis assignment in Detroit and staff positions at California Rehabilitation Center, Vallejo, and Maimonides Health Center, San Francisco. During the scientific sessions Miss Brawley will present "Physiological and Psychological Effects of Electricity on Pain."

Stanley J. Wenberg, Assistant to the President, University of Minnesota, received a bachelor of science degree from the College of Education, University of Minnesota, and a master of arts degree from the University of Minnesota. Mr. Wenberg's graduate work has been in educational philosophy and educational administration. As a member of the Army Mr. Wenberg served overseas in the European Theater of Operations and received the Bronze Star and Combat Infantry Badge. His previous positions at the University have included Assistant to the Dean of Admissions and Records, Admissions Supervisor, Director of the Bureau of Veteran's Affairs, and Director of the Greater University Fund. Mr. Wenberg is a member of the Phi Delta Kappa and Alpha Sigma Pi, honorary education fraternities; Phi Alpha Theta, honorary history fraternity; Iron Wedge, Senior Men's honorary; American Legion; Atlantic Union; Board of Directors Minnesota Association for Mental Health; President, Campus Club; Administrative Committee of the University Senate; Minnesota Citizens Committee for Public Education; Secretary, Committee on Institutional Cooperation of the Council of Ten, the University of Chicago; Industrial Relations Center Faculty Advisory Committee; and Governor Freeman's Committee on Physical Fitness Advisory Council for State of Minnesota. Mr. Wenberg will be the keynote speaker at the opening session of the Annual Conference on Monday afternoon, speaking on "Impasse Is Not the Solution to These Educational Dilemmas."

Physical Therapy School Directors to Meet

The Council of Physical Therapy School Directors will hold its annual meeting on Tuesday evening, June 23, 1959, at the Hotel Leamington in Minneapolis.

Conference Exhibitors

Technical Exhibits

AMERICAN WHEEL CHAIR DIVISION
Cincinnati, Ohio

American Wheel Chair Division will display models of its complete line of quality WHEEL CHAIRS, WALKERS, GET-ABOUT CHAIRS and COMMODES. The American Line includes WHEEL CHAIRS with removable arms, interchangeable foot and legrests, reclining backs, headrests and armslings, and new developments in REHABILITATION EQUIPMENT. Several new products will be featured.

THE BIRTCHER CORPORATION
Los Angeles, California

THE BURDICK CORPORATION
Milton, Wisconsin

The Burdick Corporation of Milton, Wisconsin, will exhibit its modern line of PHYSICAL THERAPY EQUIPMENT. This will include microwave and conventional diathermy, as well as the latest models of ultrasonic and muscle stimulating equipment. Of especial interest is the new MS-300 Muscle Stimulating unit with variable pulse rate control.

S. H. CAMP AND COMPANY
Jackson, Michigan

Camp will display new products and developments in supports and appliances of interest to you. Let the Camp representative show how the use of "Velcro" has been incorporated in adjustments and fastening and explain the various supports and appliances. New products and new developments will be displayed.

CHATTANOOGA PHARMACAL CO. INC.
Chattanooga, Tennessee

The HYDROCOLLATOR—Moist Heat Easily Applied. Each application gives at least 30 minutes of effective MOIST HEAT. This basic, effective therapy is now standard in leading Physical Therapy Departments. Four models of Master Units will be shown. These automatic, thermostatically controlled heaters maintain a constant supply of ready-to-use Steam Packs.

THE COCA-COLA COMPANY

Ice-cold Coca-Cola served through the courtesy and cooperation of the Coca-Cola Bottling Company of Minnesota, Inc., Minneapolis, and the Coca-Cola Company.

ELGIN EXERCISE APPLIANCE COMPANY
Elgin, Illinois

The originators and manufacturers of Progressive Resistance Exercise Equipment cordially invite you to inspect their new products. Widely used throughout the world, the complete ELGIN EXERCISE UNIT will be displayed for your inspection. Elgin accessories and additional Exercise Units will be demonstrated. Our representatives will be glad to supply complete information.

EVEREST & JENNINGS, INC.
Los Angeles, California

See the Everest & Jennings MONO DRIVE CHAIR and Mono Drive Attachment. This new power attachment can be attached to most Everest & Jennings chairs. This power equipment assists the patient to move about more freely. Get your free notebook and pencil at the Everest & Jennings booth.

FASCOLE CORPORATION
New York, New York

Showing our new line of equipment and self-help devices to assist you in the rehabilitation of your patients. Featuring the latest in: EXERCISE AIDS, CEREBRAL PALSY TRAINING AIDS, plus specialized devices for your patients' comfort at home. See new, enlarged FASCOLE catalog and SHOPPING CENTER.

GUARDIAN PRODUCTS COMPANY, INC.
Los Angeles, California

GUARDIAN PRODUCTS COMPANY of Los Angeles exhibits its line of Safe-T-Grip Crutch Tips, Crutch Accessories, Crutches, Canes, Foam Rubber Invalid Rings and Cushions, and other products for the safety and comfort of the invalid.

ILLE ELECTRIC CORPORATION
Williamsport, Pennsylvania

HYDROMASSAGE SUBAQUA THERAPY EQUIPMENT. Ille Electric Corporation will demonstrate in Exhibit Space No. 27 how the care of infantile paralysis, arthritis, and other disabling conditions can be greatly improved by the use of Hydromassage Subaqua Therapy Tanks. Mobile Whirlpool Bath, Paraffin Bath, Moistaire Unit and Patient Lift will be displayed.

JACUZZI BROS.
San Francisco, California

PAUL E. JOHNSON MFRS., INC.
Chicago, Illinois

Paul E. Johnson Mfrs. Inc. presents to the Physical Therapist a truly different type of infrared lamp, one that is clinically superior because it covers from 7,700 through 80,000 Angstrom Units, one that is structurally SAFE, easy to adjust, and easy to move around. From 450 Watts to 1450 Watts.

LA BERNE MANUFACTURING CO., INC.
Columbia, South Carolina

LaBerne will exhibit a progressive, resistive Extension-Flexion Exercise Unit which offers a complete range of exercise to the Knee Joint Muscle Group without the use of weights, is calibrated up to 80 pounds, with range of motion indicator. Also the Shoulder Rotator, Pronator-Supinator, the Heel Stretcher and the Hip Rotator.

MEDCO PRODUCTS CO.
Tulsa, Oklahoma

Presenting the MEDCO-SONLATOR. Providing a new concept in therapy by combining muscle stimulation and ultrasound simultaneously through a Single Three-Way

Sound Applicator. The MEDCO-SONLATOR is a distinct advance in the effectiveness of physical therapy. A few minutes spent in our booth should prove of value.

MUTUAL OF OMAHA
Omaha, Nebraska

Underwriters of the Official Disability Insurance Program of the American Physical Therapy Association since 1953. Stop by Booth No. 22 for detailed information on this outstanding coverage, and learn how you, as an APTA member, can obtain this professional plan of protection at extremely low cost.

N-K PRODUCTS COMPANY
Santa Cruz, California

The N-K Line will feature the new N-K 300 heavy-duty torque resistance apparatus as well as the standard N-K 100 and several other new specialty items, including a new dressing aid kit for patients with upper extremity involvement.

PHYSICAL MEDICINE PRODUCTS COMPANY
Kansas City, Missouri

The Physical Medicine Products Company of Kansas City will display its Electronic Muscle Stimulator Models, P-T-6 and P-T-7-G, with galvanic current and its new patented Assistive and Resistive Exercise Pulleys. These pulleys have been received enthusiastically in many of the Midwest hospitals.

PHYSICIANS AND HOSPITALS SUPPLY CO.
Minneapolis, Minnesota

Please stop by and see the latest in Physical Therapy Equipment including Ultrasonic Generators, Physical Therapy Tables and other items that will be of tremendous interest to you.

PORTO-LIFT MANUFACTURING COMPANY
Lansing, Michigan

PORTO-LIFT is designed for smooth and effortless patient lifting in a prone or seated position at the touch of a simple hydraulic control. PORTO-LIFT ensures movement from bed to wheel chair, bath, and automobile in safety and comfort. With the additional accessories available lifting and transfer problems can be met.

J. A. PRESTON CORPORATION
New York, New York

Welcome to our many friends. You will see an all-new Walker, the versatile HAUSTED TRACTION AID, new goniometers, SELECTED BOOKS, and other new products. Preston, originators of a complete line for physical therapy and rehabilitation, is at your service. Your PRESTON CATALOG is complete and convenient for ordering your needs.

REHABILITATION PRODUCTS, DIVISION OF AMERICAN HOSPITAL SUPPLY CORPORATION
Evanston, Illinois

Selected products of physical therapy equipment. The new Tomac All-Purpose Table, Tomac Snap-On Covers for Hydrocollator Packs, Miller Twister, Tomac Electrotherapy Equipment, Invalid Walkers, American Wheel Chairs, Exercise Equipment and Self-Help Devices. Register for the new R/P Products Bulletin. Our sales representatives in 10 regional offices wish to serve you.

SPENCER, INCORPORATED
New Haven, Connecticut

Every Spencer Support is individually designed and manufactured according to prescription to assist in rehabilitative treatment. You are cordially invited to visit the Spencer Booth to see samples of our supports or to inquire about the specific requirements of individual patients. Ask about our Emergency Service for patients requiring immediate support.

STANLEY PHYSICAL THERAPY EQUIPMENT & SUPPLY CO.
Chicago, Illinois

This display reflects the scope of Chicago loop showrooms where over 500 items are shown. SPT includes service department, design department, and consultation staff under one roof. Representing the finest in physical therapy and rehabilitation equipment: Battle Creek, Birtcher, Dallons, Fischer, Hanovia, Jacuzzi, Orthopedic, Porter, Rajowalt and Whitehall. Art Wiebe, Norbert Melchior welcome you.

SUNDBER INSTRUMENTS, INC.
San Pedro, California

The Walk-O-Pedic invalid walker's automatic brake assures complete safety, inspires confidence and in most cases eliminates need for attendant. Clinically tested in leading hospitals and institutions on the West Coast, it has been widely hailed for its superiority and advance in concept and use over conventional walkers.

TECA CORPORATION
White Plains, New York

See TECA for the latest in electrodiagnosis and electrotherapy. Low volt generators, ultrasound, chronaxie meters, and Teca electromyograph with new photo recording and conduction time testing features will be in operation. Bring your questions.

TRU-EZE MFG. CO., INC.
Burbank, California

Exhibiting the Tractomatic, portable intermittent traction machine. Simple operating technic permits simultaneous treatment of other patients. Traction and Therapy Table splits in 3 sections, each operating independently or in series on ball-bearing rollers on channel track, with Tractomatic hooked to adjustable shelf. Thoracic region stationary for counter-traction.

WHITEHALL ELECTRO MEDICAL CO., INC.
Passaic, New Jersey

The Whitehall "one motor" mobile whirlpool bath will be on exhibit. See a personal demonstration of the whirlpool bath combining all essential operations, agitation, aeration and emptying into a single motor driven system. Whitehall manufactures a complete line of hydrotherapy equipment, including wading tanks and therapeutic pools.

Chapter Exhibits

ALASKA CHAPTER

A map of Alaska will be exhibited indicating where the physical therapists are located. Pictures will show some interesting phases of the various therapists' work.

NORTHEASTERN DISTRICT OF OHIO

"Civilian Defense and You." A three dimensional picture of an atomic explosion and resultant holocaust provides background for physical therapists carrying out first-aid procedures which would be expected in the event of such a disaster. The exhibit describes the need for specialized training for therapists to meet such an emergency.

SOUTHERN CALIFORNIA CHAPTER

"California Chapters Orbit Outer Space." Two space-age physical therapists view an APTA rocket launched by the five State Chapters and directed toward the moon which represents the constant professional goal of improved patient care. The satellites in orbit portray a specific State or Chapter project. A descriptive brochure will be distributed.

Scientific Exhibits

THE ARTHRITIS AND RHEUMATISM FOUNDATION
New York, New York

"This is Arthritis." The Arthritis and Rheumatism Foundation features a pathological portrayal of the crippling process of rheumatoid arthritis. A series of large transparent photographs show the course of the disease from a normal to a severely crippled human joint. The various stages light up in succession lending an animated effect.

CHILDREN'S BUREAU,
U. S. DEPARTMENT OF HEALTH,
EDUCATION AND WELFARE
Washington 25, D. C.

"Congenital Malformations." The Children's Bureau exhibit focuses attention on the problems of congenital malformation. It touches on the incidence, some causes, and examples of congenital malformation. The fundamentals of the congenital malformation programs sponsored by the Children's Bureau and the number of children served are shown.

CHILDREN'S REHABILITATION INSTITUTE, INC.
Reisterstown, Maryland

"Evaluation of a New Drug Effective in Cerebral Palsy." A new relaxant drug, W-712, evaluated among more than 80 cerebral palsy children proved useful particularly among spastic and rigidity groups in promoting relaxation of the extremities and bracing tolerance, thereby increasing the ability of the cerebral palsy child to accept therapy.

GEORGIA WARM SPRINGS FOUNDATION
Warm Springs, Georgia

"Scoliosis." The exhibit shows an over-all treatment of scoliosis. Pictures present analysis of the problem, illustrate apparatus, and specific mobilization and exercise procedures.

IOWA METHODIST CHURCH
Des Moines, Iowa

"Younker Memorial Rehabilitation Center" is integrated with the hospital. Functional bridges connecting buildings are symbolic of close cooperation. After treatment for the acute phase of illness, the patient may be transferred to the 120-bed rehabilitation center. A mural serves as background for panels telling in translite pictures the rehabilitation story.

ELIZABETH KENNY INSTITUTE
Minneapolis 4, Minnesota

Motion pictures of actual treatment of hemiplegic patients at Elizabeth Kenny Institute. Still pictures demonstrate examples of transfer procedure from bed to wheel chair. An animated section depicts the proper positioning in bed for various parts of the body.

NATIONAL SOCIETY FOR CRIPPLED
CHILDREN AND ADULTS, INC.
Chicago, Illinois

"Vocational Training." Depicts the role of the physical therapist in preparing the patient for vocational training.

MUSCULAR DYSTROPHY ASSOCIATIONS
OF AMERICA, INC.
New York, New York

"Manifestations of Muscular Dystrophy." This exhibit shows the genetics of the condition, activities of personnel engaged in research sponsored by MDAA, Inc., and describes the new Institute for Muscle Disease. An automatic tape features an interview with Dr. M. H. Manson, Scientific Director of MDAA, Inc., which is heard by mock telephones.

THE NATIONAL FOUNDATION
New York, New York

"Paralytic Polio Rose in 1958." Unless Salk Vaccine is administered to large numbers of those who have not yet received it, paralytic polio may again rise in this country. Data are presented on the effectiveness of the Salk Vaccine and the results of current trials of oral vaccines.

UNITED CEREBRAL PALSY ASSOCIATIONS, INC.
New York, New York

"The Role of the Family Doctor in Cerebral Palsy." Diagnosis, treatment, and rehabilitation of the cerebral palsied patient, including work with parents, school authorities, dentists, physical, occupational and speech therapists. The aim of all professionals concerned is providing maximum opportunity for the patient's full participation in family, vocational and community life.

VETERANS ADMINISTRATION
Washington, D. C.

"Rehabilitation of the Quadriplegic Patient." The exhibit portrays significant steps taken in rehabilitation of the quadriplegic by selected VA Hospitals that have special treatment facilities and adapted equipment for spinal cord injuries. A 10 year summary on treatment of veterans with spinal cord injuries is available.

UNITED STATES AIR FORCE MEDICAL SERVICE
Washington, D. C.

"U.S. Air Force Medical Treatment Facility." The exhibit will consist of color transparencies showing a typical 250-bed hospital with its rehabilitation facilities.

UNITED STATES ARMY MEDICAL SERVICE
Washington, D. C.

"Respiratory Resuscitation." The exhibit shows the responsibility of the physical therapist in the application of proper methods of respiratory resuscitation and the role the Army plays in developing these methods. The physical therapist will be invited to practice resuscitation methods on a manikin.

Section on Education

Chairman
MARGARET BRYCE

Vice Chairman — RUTH COOK
Secretary — VIRGINIA WHITFIELD
Treasurer — MILDRED HEAP

Sunday, June 21

8:00 A.M.— 5:00 P.M. **Illinois Room**
8:00 A.M. Registration
9:00 A.M.—12:00 NOON SURVEY OF PHYSICAL THERAPY EDUCATION IN MEMBER COUNTRIES OF THE WORLD CONFEDERATION FOR PHYSICAL THERAPY
Lucille Daniels, Director, Division of Physical Therapy, Stanford University
THE SUPERVISOR'S ROLE AS A TEACHER
John J. Flanagan, S. J., Executive Director, Catholic Hospital Association
THE SUPERVISOR'S ROLE IN ADMINISTRATION
W. I. Christopher, M.H.A., Director of Hospital Personnel Services, Catholic Hospital Association
Questions and Discussion
12:30 P.M. Luncheon—Business Meeting
2:00 P.M. Workshop
Workshop Reports

Public Health Section

Vice Chairman — MARIAN PRATT
CLARA ARRINGTON, *Chairman*
Treasurer—WILHELMINA WERKHOVEN
Secretary — ANNA SWEELEY

Sunday, June 21

8:45 A.M.— 5:00 P.M. **Indiana Room**
8:45 A.M. Registration
9:15 A.M.—12:00 noon ORIENTATION OF PHYSICAL THERAPISTS TO PUBLIC HEALTH
Discussants: Elizabeth Carey, State Department of Health, New York
Mary MacDonald, Visiting Nurses Association of Boston
General Discussion
METHODS OF KEEPING STAFF UP-TO-DATE ON CURRENT TRENDS
Leader: Elizabeth Carey, State Department of Health, New York
General Discussion
1:30 P.M. PHYSICAL THERAPY SERVICES TO NURSING HOMES—REPORT OF A PILOT STUDY
Speaker: Mary MacDonald, Visiting Nurses Association of Boston
General Discussion on Home Care Programs: how developed, policies, program emphasis and trends
Leaders: Mary MacDonald, Visiting Nurses Association of Boston

Clara Arrington, Children's Bureau, Department of Health, Education, and Welfare, Washington, D. C.

4:00 P.M. Business Meeting

Any member of the American Physical Therapy Association holding a position concerned with physical therapy in a public health setting is eligible for membership in this Section. Association members interested in becoming members of this Section should apply to Wilhelmina Werkhoven, R.F.D. 1, Job's Hill Rd., Ellington, Conn.

Application should contain full name, place of employment, mailing address, physical therapy school and year of graduation. The annual dues are one dollar ($1.00) payable to the Public Health Section, American Physical Therapy Association, and should accompany application.

Self Employed Section

Vice Chairman
JAMES B. MCKILLIP, JR.

ALMA H. MAGA, *Chairman*

Corresponding Secretary
THOMAS WELCH

Treasurer
BERTRAM L. GUSTAFSON

Recording Secretary
CARMEL HYBARGER

Sunday, June 21

8:00 A.M.	Executive Committee Breakfast
8:45 A.M.— 5:00 P.M.	**New York Room**
8:45 A.M.	Registration and Inspection of Exhibits
9:30 A.M.	Meeting Called to Order—Welcome
	Original Papers SELF EMPLOYED PHYSICAL THERAPIST IN THE HOSPITAL—Charles M. Magistro ATHLETIC INJURIES: DISCUSSION AND DEMONSTRATION—Joseph P. Savan Reports and Discussion from the informal Self Employed Study Group Film
12:15 P.M.	Luncheon
1:15 P.M.	Business Meeting, including Election of Officers Panel Discussion on Fees for Physical Therapy Report of Election and Introduction of New Officers Announcements

All Association members are cordially invited to attend the morning and afternoon sessions of the Self Employed Section meeting. If luncheon is desired, reservations must be made in advance with the Treasurer, Bert Gustafson, 609 Sutter Street, San Francisco, or at the Self Employed Section Registration desk on the basis of first come, first served. Although the business meeting will be open to the general membership, participation will be limited to members of the Section.

Coming Meetings

June 8-12 American Medical Association, Atlantic City

June 16-18 American Orthopedic Association, Lake Placid Club, Lake Placid, New York

June 21-26 American Physical Therapy Association, Hotel Leamington, Minneapolis

International

June 8-14 First Mediterranean Conference on Rehabilitation, Athens

Sept. 6-12 Third Congress, World Confederation for Physical Therapy, Nouvelle Faculté de Medicine, Paris

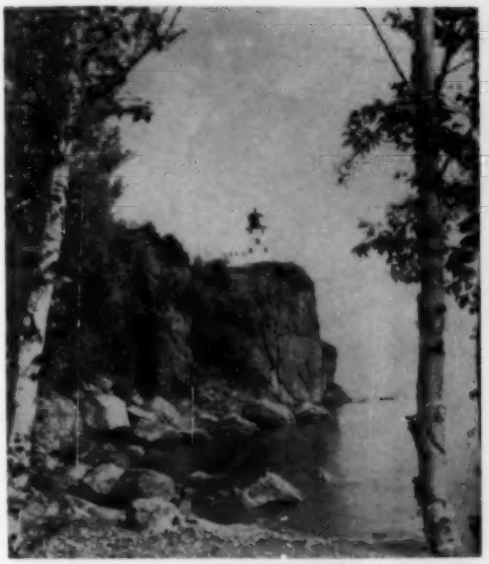
You Name It Minnesota Has It

The time has come for all good members of the American Physical Therapy Association to pack their bags and head to the Twin Cities for the 36th Annual Conference.

We are awaiting you with open arms. All plans for the Conference are jelled and we are raring to go.

Let's assume you are already in the Twin Cities and you want to fill every minute with excitement; so for your convenience, we shall attempt to outline in brief the available eating, recreation, and sight seeing places.

Where shall we have dinner? The only problem here is to make up your mind. Do you sigh for Polynesian dishes? Then it's the Waikiki Room, Hotel Pick-Nicollet. If your appetite is on the masculine side, try Schieks, a 65 year old trademark that combines the mellow charm of a typical old-world interior with a modern exterior, featuring a vocal production by Schieks' sextet. Charlie's Cafe Exceptionale, one of America's most distinctive and better known cafes, where visitors from throughout the nation enjoy good dining, is an excellent spot. Murray's famed for tender steaks, the Nankin for Chinese food, and numerous other fine restaurants serve food and beverages to please the most particular tastes. You may choose with equal confidence the lively atmosphere of the cabaret, complete with dance band and floor show, or the quiet cafe that affords opportunity for pleasant conversation.



Lake Superior North Shore Assn.

Lighthouse on Lake Superior

Are you ready now for your city tour? There is an inexpensive motor launch ride covering Lake Calhoun, Lake of the Isles, and Cedar Lake. You can watch the sail boat races almost every afternoon and Sundays or even loll around on the sandy beach and swim in its cool waters. If you find time, drive out to Lake Minnetonka with its 200 miles of lakeshore and motor around the bays and inlets of Minnetonka itself.

St. Paul Chamber of Commerce

Saint Paul

Minnesota Division of Publicity

Statue of Paul Bunyan in the Amusement Park at Brainerd, Minnesota.

Walk down Third Avenue, stop in the middle of the bridge, look up and down the Mississippi and see St. Anthony Falls. Cross the river and visit any one of the large flour mills—they have conducted tours.

Choices for an afternoon of fun are multiple: See Minnehaha Falls and the statue of Hiawatha and Minnehaha, the wild flower garden in Wirth Park, the flower gardens at Lyndale Avenue and Kenwood Parkway, the rose gardens at Lake Harriet, the mansions around Lake of the Isles.

Minneapolis becomes an entertainment meca after dark. Along Hennepin Avenue, called the "Broadway of Minneapolis," you will find brightly lit theatres, night clubs which beckon to the night farer in search of pleasurable dining, dancing, and good floor shows.

Minneapolis is the Midwest's sport capital. Visit the Metropolitan Stadium, home of the Minneapolis Millers. In addition, boxing, wrestling, golf, and tennis tournaments are going on all the time.

If it is culture you are after, visit the Walker Art Center, the Minneapolis Institute of Art, the Swedish American Museum, and the University of Minnesota Gallery. Summer stock at the Old Log Theatre is the best in the straw hat circuit. If you like classical music, Minneapolis is famed for its symphony orchestra, recognized throughout Europe as one of the top five orchestras of the world.

The University of Minnesota with its central campus standing high on the east bank of the Mississippi river between Minneapolis and St. Paul is open to all.

Here are some places to see in St. Paul: Minnesota State Capital Building; Como Park Conservatory, housing interesting plants; and the Indian Mounds Park—situated on a high bluff overlooking the Mississippi, where several aboriginal mounds of historical interest can be found.

You name it; we have it! Lighthouses on the North Shore—numerous falls: Taylors Falls, Minnehaha Falls, St. Anthony Falls—lakes, 22 within the city limits itself. Come to Minneapolis—enjoy the Conference and play in our vacationland!

Whatever your mood when you visit—whether you are calm, relaxed, and reflective or ready for something rowdy-dow, you'll encounter endless possibilities for sight-seeing, culture, or plain fun. Just hope your legs hold out.

See you in Minneapolis in June!

Research Group to Meet

On Monday morning, June 22, from 9:00 A.M. until 12 NOON members interested in research will meet at the Hotel Leamington in Minneapolis. The following program has been planned by Marian Williams, Program Chairman, and Sara Jane Houtz, Chairman of the Research Group:

9:00 A.M.—10:15 A.M.

Introduction and report of the research survey of January 1959.

Discussion will follow.

10:30 A.M.—12:00 NOON

Informal report of research related to electromyography.

Selected reports will be given.

Panel discussion on research related to electromyography.

Alumni Meetings at Conference

Monday, June 22

Columbia University Alumni Dinner Hour Meeting

University of Pennsylvania "Mixer"—5:00 P.M. to 6:30 P.M.

Wednseday, June 24

Duke University Luncheon—NOON

New York University Luncheon—12:30 P.M.

University of Southern California Luncheon —NOON

University of Wisconsin Luncheon—NOON

Chapter Workshop in Minneapolis

On Friday morning, June 26, from 9:00 A.M. to 12:00 NOON chapter and district officers are urged to attend the workshop. The Advisory Committee on Chapter Activities has invited the Judicial Committee to present a mock interview, the purpose of which will be to demonstrate appropriate action by chapter executive committees in matters pertaining to the Code of Ethics.

Following the Judicial Committee's presentation, panel and group discussions on procedures, communications, and programing will be held. All interested members are welcome to attend the entire morning session.

Third Congress

World Confederation for Physical Therapy

Third International Congress—Sunday, Sept. 6, 1959, to Saturday, Sept. 12, 1959.

Place of the Congress—The Congress will be held at the Nouvelle Faculté de Medécine, 45 Rue des Saints Péres, Paris VI^{e}, France.

Attendance—The Congress is open to all members of the American Physical Therapy Association.

Opening Ceremony—The opening Ceremony will be held in the famous Palais de Chaillot at 9 A.M. Monday, Sept. 7, 1959.

Theme—The theme of the Congress will be "Physical Therapy—Its Importance in Human Economic and Social Development" with emphasis on Neurology, Geriatrics, Orthopedic Surgery and Traumatology, Rheumatology, Heart and Chest Conditions, Aids and Prostheses, and Psychiatry.

Official Language—There will be simultaneous translation of the lectures and discussions in English, French, and German.

General Assembly—A meeting of the General Assembly of the World Confederation for Physical Therapy will be held during the Congress.

Congress Registration—Congress registration fees may be paid to the American Physical Therapy Association.

Full Members	$14.12
Social Associates	5.65
Student Members	4.23

Full Members are physical therapists, doctors and persons in allied medical fields. Social Associates are persons not eligible as, but accompanying, Full Members.

Additional Information

Details regarding chartered plane schedules, hotel accommodations in Paris, social events and dress may be found in the April and May, 1959 issues of the *Review*. For complete information on Pre- and Post-Congress courses that have been arranged in Great Britain, Denmark, Sweden and Western Germany refer to page 240 in the April issue.

French Government Tourist Office

Musée de Cluny

Education

Student Column

(From left to right) Miss Mary McMillan, first president of the APTA; George Mackechnie, Dean of Sargent College; Annetta Cornell Wood, Executive Director, American Physical Therapy Association. Seated, Marcia Hood, Sargent College Freshman.

"Pinning"

Another step is taken
in solemnity and grace
As quietly in the chapel
We meet and take our place.

Together in the silence
anxious hearts await.
Each alone in thought
her goals to re-create.

Thoughts return to all the yesterdays
and the echo of the steps which brought us here.
And then are turned in expectation
to the tomorrows and the call that each will hear.

Together in the silence
commencing a humble procession
Each to her name responds
and receives a pin, symbol of profession.
We dedicate to all men...
Regardless of race, color or creed—
Our service.

"Each to her name responds, and receives a pin, symbol of profession..." During the week-end of February 6, 7, 8, Boston University, Sargent College, held its formal dedication for its new college buildings. As a part of the week-end program, the Third Annual Pinning Ceremony took place on Saturday in the Boston University March Chapel.

Under the direction of the President, Sandra Seidenberg, and the Advisor, Gloria Brawley, the Physical Therapy Club planned the program. Dean George Makechnie offered the invocation and Linda Carter, a senior student, followed with a vocal selection, "I'll Walk With God." Adelaide McGarrett, Director of the Physical Therapy Department, gave a greeting to all the students and invited guests. During the program Dr. Elizabeth Gardner, Chairman of the Sargent College Department of Science, was awarded an honorary certificate of membership to the Physical Therapy Club.

The main speaker for this occasion was Annetta Cornell Wood, Executive Director of the American Physical Therapy Association.

Another highlight of this program was the inspirational message to the students given by Mary McMillan, the first president of the American Physical Therapy Association. Miss McMillan told of her many thrilling experiences in the pioneering of the profession of physical therapy.

The ceremony itself took place before the altar of the chapel. Each Junior student was escorted to the altar by a Senior student. Miss McGarrett presented each pin, the Senior pinned the Junior, and Dean Makechnie offered congratulations.

A reception was held following the Pinning Ceremony in the lounge of Sargent College. This reception provides an opportunity for the Juniors to present their families and friends to the faculty and other invited guests.

Each year the Pinning Ceremony program is planned so that all three classes—Freshmen, Sophomores, and Seniors—may pay tribute to the Juniors as they embark on their professional careers. Since the Senior students, at this time, are well indoctrinated into their chosen profession, it is fitting that they pass this symbol of

learning and service on to the Junior students. To complete the picture of participation by all classes, members of the Sophomore class act as hostesses and ushers in the chapel for the ceremony while members of the Freshman class serve as hostesses for the reception.

University of Southern California

Troyville once again is buzzing with energetic future physical therapists who come from all parts of the country—Massachusetts to Los Angeles and points in between. There are 25 completing students in the department with the majority working on the certificate program.

For the second year, the outstanding student of the class was presented with a $50.00 award donated by Dr. Yamshon. The Yamshon Award is based on personal and professional standards set up by the P.T. Club and on scholastic attributes. The 1958 award was given to Mickey Bevilacque at a luncheon attended by all students and faculty. Guests included Dr. Raubenheimer, Educational Vice President; C. L. Lowman, M.D.; and P. O. Greely, M.D. Congratulations were received by Mickey and the entire class of 1958.

One of the most important events each year is the election of alumni officers. The new officers for this year are President, Charles Barnard; President Elect, Mickey Bevilacque; Secretary, La Rita Cortsen; Treasurer, Joe McKendrick.

At the beginning of the second semester the students in the department were introduced to clinical situations. Although the clinic program is by no means new to the students, it is the first time many have had the opportunity to observe a hospital physical therapy department in action. A full week was scheduled to allow for this experience. Many of the class spoke of how exciting it was to see the physical therapist at work and how it helped to understand the why's and how's of theory.

At the present time students are visiting 20 community organizations. Their reports will describe the function of the agency, what its services are, and how the physical therapist can cooperate with the agency for better community services.

— G. BARTON ROWE

SHORT TERM COURSES FOR GRADUATE PHYSICAL THERAPISTS

Title of Course	*Sponsor of Course*	*For Details Contact*	*Dates of Course*
Cerebral Palsy	The North Carolina Cerebral Palsy Hospital Durham, North Carolina	Dr. Lenox D. Baker Medical Director No. Carolina C. P. Hosp. Durham, North Carolina	Courses arranged according to individual need—duration 3 months
Physical Therapy in the Care of Neuromuscular Disease	Georgia Warm Springs Foundation Warm Springs, Georgia	Robert L. Bennett, M.D. Medical Director Ga. Warm Springs Found. Warm Springs, Georgia	January April October
Postgraduate Course in Technics of Treatment	Children's Rehabilitation Institute for Cerebral Palsy Reisterstown, Maryland	Christopher H. Wiemer Executive Director Children's Rehab. Inst. Reisterstown, Maryland	July 6—Sept. 18, 1959 Oct. 5—Dec. 18, 1959
Technics of Neuromuscular Reeducation	California Rehabilitation Center Vallejo, California	Margaret Knott Chief P. T. Calif. Rehab. Center Vallejo, Calif.	January 1 April 1 October 1
Functional Bracing of the Upper Extremities	U. of California and U. S. Office of Vocational Rehabilitation	Prosthetics Education Program Rm. B4-229, Medical Center University of California at Los Angeles 24, California	Sept. 28—Oct. 2, 1959 June 13—17, 1960

Schools Offering Courses in Physical Therapy

APPROVED BY THE COUNCIL ON MEDICAL EDUCATION AND HOSPITALS OF THE AMERICAN MEDICAL ASSOCIATION

Schools offering the four year program leading to a baccalaureate degree accept high school graduates and transfer students. Schools offering the 12 to 16 months' program leading to a certificate accept students who have completed all or most of their undergraduate work providing they meet certain course requirements. Recipients of a degree and/or certificate have equal professional status. For specific information regarding each school's entrance requirements, curriculum, tuition and other fees, write to the physical therapy director indicated below. All students should investigate course requirements *early*.

	Degree	*Certificate*
CALIFORNIA		
Mary J. Dodge School of Physical Therapy Childrens Hospital Society 4614 Sunset Boulevard Los Angeles 27	‡	†
Ronald A. Hershey School of Physical Therapy College of Medical Evangelists Loma Linda	†	†
Lucille Daniels Division of Physical Therapy Stanford University Stanford (Palo Alto)	†	†
Margery L. Wagner Curriculum in Physical Therapy University of California The Medical Center San Francisco 22	†	†
Charlotte W. Anderson Department of Physical Therapy University of Southern California Los Angeles 7	†	†
COLORADO		
Dorothy Hoag Curriculum in Physical Therapy University of Colorado Medical School Denver 20	†	†
CONNECTICUT		
James M. Bauer Acting Director School of Physical Therapy U 101 University of Connecticut Storrs	†	
ILLINOIS		
Elizabeth C. Wood Course in Physical Therapy Northwestern University Medical School 303 East Chicago Avenue Chicago 11	†	†
IOWA		
Olive C. Farr Physical Therapy State University of Iowa Hospitals Iowa City		†
KANSAS		
Ruth G. Monteith Section of Physical Therapy Education University of Kansas Medical Center Kansas City 12	†	†
LOUISIANA		
(Not accepting students during 1958-1959) Director School of Physical Therapy Charity Hospital of Louisiana New Orleans 12		†
MARYLAND		
Gladys E. Wadsworth, Ph.D. Department of Physical Therapy School of Medicine University of Maryland Baltimore 1	†	
MASSACHUSETTS		
Adelaide L. McGarrett Physical Therapy Department Boston University Sargent College University Road Boston 15	†	†
Constance K. Greene Department of Physical Therapy *Bouvé-Boston School, Tufts University Medford 55	†	
Shirley M. Cogland *Program in Physical Therapy Simmons College-Children's Hospital 300 Longwood Avenue Boston 15	†	†
MICHIGAN		
Virginia Wilson Curriculum in Physical Therapy The University of Michigan University Hospital Ann Arbor	†	†
MINNESOTA		
Darrell D. Hunt School of Physical Therapy Mayo Clinic Rochester		†
Wilbur L. Moen Course in Physical Therapy University of Minnesota 860 Mayo Memorial Building Minneapolis 14	†	

* Accepts women students only.

‡ Baccalaureate degree available from an affiliating college or university.

	Degree	Certificate
MISSOURI		
Sr. M. Imelda, S.S.M. Department of Physical Therapy St. Louis University 1325 South Grand Boulevard St. Louis 4	†	
Beatrice F. Schulz Department of Physical Therapy Washington University School of Medicine 660 So. Kingshighway St. Louis 10	†	
NEW YORK		
Dorothy L. McLaughlin Albany Medical College Division of Physical Therapy Albany 8	‡	†
Mary E. Callahan Courses for Physical Therapists Columbia University College of Physicians & Surgeons 630 West 168th Street New York 32	†	†
Elizabeth C. Addoms Physical Therapy Curriculum School of Education, New York University Washington Square East New York 3	†	†
Mildred F. Heap Program in Physical Therapy University of Buffalo 3435 Main Street Buffalo 14	†	†
NORTH CAROLINA		
Helen Kaiser Division of Physical Therapy Box 3403, Duke University Medical Center Durham		†
Margaret L. Moore Section of Physical Therapy School of Medicine University of North Carolina Chapel Hill	†	
OHIO		
Robert D. Kruse, D.P.E. Course in Physical Therapy Frank E. Bunts Educational Institute 2020 East 93rd Street Cleveland 6		†
Gladys G. Woods School of Physical Therapy Ohio State University University Hospital Columbus	†	†
OKLAHOMA		
Thelma Pedersen School of Physical Therapy University of Oklahoma, Medical Center Oklahoma City 4	†	†
PENNSYLVANIA		
Dorothy E. Baethke Division of Physical Therapy University of Pennsylvania 3901 Pine Street Philadelphia 4	†	†
Kathryn Kelley Curriculum in Physical Therapy D. T. Watson School of Physiatrics Leetsdale	‡	†
PUERTO RICO		
(All classes given in Spanish) Lutgarda V. Piñeiro School of Physical & Occupational Therapy Candelaria & Mandry Streets Stop 22, Santurce	†	†
TEXAS		
Doris E. Porter Grady Vaughn School of Physical Therapy Baylor University Hospital Dallas 1	†	†
Cecelia J. Lee School of Physical Therapy Hermann Hospital Houston 25	‡	†
Ruby Decker School of Physical Therapy The University of Texas Medical Branch Galveston	†	†
VIRGINIA		
Susanne Hirt School of Physical Therapy Medical College of Virginia Richmond 19	†	
WISCONSIN		
Beth J. Phillips Curriculum in Physical Therapy Marquette University School of Medicine 561 North 15th Street Milwaukee 3	†	
Margaret Kohli Course in Physical Therapy University of Wisconsin Madison 6	†	
U. S. ARMY MEDICAL SERVICE		
*Physical Therapy Course Army Medical Service School Brooke Army Medical Center Fort Sam Houston, Texas Write to: The Surgeon General Department of the Army Washington 25, D. C. Att.: Personnel Division		†

* Accepts women students only.

‡ Baccalaureate degree available from an affiliating college or university.

Please direct all inquiries regarding tuition, entrance requirements and other specific information to the school and *not* to the American Physical Therapy Association.

Abstracts

Treatment of Acutely Compressed Vertebral Body by Progressive Mobilization

Ernst Dehne and James J. Schubert (Letterman Army Hospital, San Francisco), U.S. ARMED FORCES M. J., 9: 1736-1744, December 1958

This article deals with the relative merits of the prevalent method of treatment of the fractured spine by application of a "hyperextension cast" and the advantage of simple bed rest with early mobilization.

The authors state that the usual "hyperextension cast" is applied for variable periods of time, most of which usually fall short of the period of immobilization necessary to guarantee consolidation after reduction. Roentgenograms taken through these casts reveal that the original position resulting from injury is usually not changed substantially. The cast is followed by some form of brace which is worn for a period of time considered adequate by the physician. The over-all results are satisfactory in a large percentage of the cases treated.

A residual group of patients, however, remain with a variable degree of complaints. Of this group, functional results vary widely with the patient's character and behavior pattern. Insecure persons and those unable to cope with the challenge of life may seek to use their ailment as an excuse to lean on society for partial or total support. Since evidence suggested that the incidence of these "sociomatic" complaints arose in direct proportion to the duration of the management of the underlying fracture, this study was dedicated to the feasibility of shortening the period of treatment of the fracture, thus reducing the incidence of the sociomatic problem.

Thirty-five cases with acute compression fractures of the thoracic and lumbar vertebrae were treated with complete bed rest and early mobilization. Within the first two days following injury mobilization aimed at rehabilitaton of muscle function was initiated. This mobilization consisted of practicing rolling over from one side to the other. Successful return of muscle function was announced by disappearance of pain. Recurrence of pain after normal function returned indicated that the fracture had been subjected to undue stress. Future progress of the patient, therefore, was regulated on the basis of permitting any function which can be carried out without eliciting pain. It was found that ambulation, for limited periods and distances, could be resumed within a few days after injury. Tolerance for prolonged sitting or standing was much slower to return.

The method of treatment and the full results are presented. The functional results were shown to be excellent and the time factor substantially reduced.

Anatomy of Esophageal Hiatus of the Diaphragm and the Pathogenesis of Hiatus Herniation

Paul Marchand (Department of Surgery, Johannesburg General Hospital, South Africa), J. THOR. SURG., 37: 81-91, January 1959

The investigator dissected 30 diaphragms and described the anatomy of the esophageal hiatus of the diaphragm.

The crura arise from tendons whose fibers blend with the anterior longitudinal ligament over the upper lumbar vertebra. The crura pass upward in close contact with the vertebral bodies for most of their course and only incline forward as they arch in front of the esophagus. As soon as muscle fibers appear in the right crus, they group themselves into two flattened muscle bundles, one dorsally placed, the other ventrally placed. These two bundles are separated from each other by loose connective tissue. These muscle bands diverge and cross each other in a scissors-like fashion, the ventral band forming the right hiatal muscle and the dorsal band the left hiatal muscle. The laterally placed fibers of each hiatal limb insert directly into the central tendon of the diaphragm but the medial fibers, which form the hiatal margins, incline toward the midline in front of the esophagus and decussate with the fibers of the opposite limb.

The hiatal orifice is elliptical in shape which would be expected from the mode of origin and insertion of the hiatal muscles and the direction of their fibers. Any tendency toward the widening of the transverse diameter of the ellipse is opposed by the crossing over of the crural limbs and by the anterior decussating muscle fibers.

In the presence of a hernia the anterior hiatal muscles are absent or reduced to a few atrophic strands. The hiatus is now no longer a sagittal slit but a rounded opening. Associated with the widened hiatus, there is an increased separation of the posterior hiatal limbs so that instead of a semiclosed scissor position there is now an open scissor position.

The maintenance of the optimal size and shape of the hiatus against peritoneal pressure is the important factor which resists herniation. Once the hiatus dilates it becomes subject to the full strain of the peritoneal pressure and inevitably it will stretch. The effective herniating force is the pleuroperitoneal pressure gradient and this varies physiologically and pathologically.

There is a lifelong antagonism between the herniating force and the anatomic resisting mechanism of the hiatus. Herniation can occur when the herniating force is increased over a long period of time or when the resisting mechanism is weakened; often both causes are present together. Pregnancy and obesity are the most common conditions which produce herniation in the adult.

Exercise and Limb Circulation in Health and Disease

Travis Winsor, Chester Hyman and J. Howard Payne (Departments of Medicine, Physiology and Surgery, University of Southern California School of Medicine, Los Angeles), A.M.A. ARCH. SURG., 78: 184-192, February 1959

It is usually assumed that the arteries of the healthy extremity can supply the resting needs of the tissues of the extremity, and can also easily carry the extra blood needed to the exercising muscles, without depriving the skin or other tissues of the extremity. On the other hand, in arterial occlusive diseases the arterial blood supply is inadequate to meet the needs of the exercising tissues. If this is true, the satisfaction of the excess circulatory needs of the exercising muscle is achieved at the expense of the other tissues. Therefore, the use of exercise in the treatment of peripheral vascular disease may be harmful.

The present study was carried out to obtain information concerning the effects of exercise of the calf muscles upon the circulation of the toes, foot, ankle and calf. Studies were made before and after exercise in normal subjects and in patients with arteriosclerotic obliterative disease. The findings indicate that in the presence of arterial disease increased circula-

tion through the exercising calf diverts blood from ankle, foot and toes, resulting in relative ischemia of the toes during the postexercise period. The findings also show no modification of the measurements after a sympathectomy. This suggests that a sympathectomy does not increase the collateral blood flow into a limb whose large arteries are occluded.

These observations should have some bearing on the treatment of patients with peripheral vascular disease. It would seem detrimental to the skin and to the distal portions of the limbs for these patients to walk excessively or to exercise to the point where blood flow debt occurred. It is apparent that decreases in the cutaneous circulation may result from exercise even though there is evidence of increased circulation through muscles.

Therapeutic Exercise in Rheumatoid Arthritis

Arthur L. Watkins (Department of Physical Medicine, Massachusetts General Hospital, Boston), ARTHRITIS AND RHEUMATISM, 2: 21-26, February 1959

In rheumatoid arthritis the value of general rest has often been stressed. On the other hand, in the case of joints, complete disuse is known to have destructive effects with decrease of functional capacities. Some general exercise is necessary for maintenance of metabolism at desirable levels and to prevent muscular atrophy. In some rheumatoid arthritics, the muscle atrophy is so striking that some form of myopathy or neuropathy is often suspected.

The first goal of exercise is to maintain a maximum arc of motion, and secondly, to maintain sufficient motor power to make the motion useful. In many cases some degree of limited joint motion is inevitable. Then it should be made certain that the remaining motion is within the most functional arc as determined by principles of joint mechanics. Prevention of deformities and maintenance of joint mobility are of value only insofar as they lead to functional ability or skill. Finally, the most important principle of therapeutic exercise is to gage the activity prescribed so as to avoid damage.

Conventional exercises are listed in detail for all joints of the upper extremity, neck, jaw, back, and all joints of the lower extremity. It is also strongly suggested that exercises based on the principle of primary motor patterns be used. Patients quickly develop a natural feeling for these patterns and learn them quickly. They are timesaving, as all the joints of the extremity are exercised in a single pattern. During the quiescent stages of the disease progressive resistance exercise may be safely employed under careful supervision. Modifications of standard technics are suggested in this paper. Gait training, posture training, and breathing exercises should also be included.

Hypoglossal-Facial Anastomosis of Treatment of Facial Paralysis

L. A. Kessles, J. Moldauer and J. L. Pool (Neurological Institute, Columbia Presbyterian Hospital, New York), NEUROLOGY, 9: 118-125, February 1959

This is a report of a study on 17 cases of facial paralysis treated by hypoglossal-facial nerve anastomosis. Of the 17, 14 proved to be successful, 3 unsuccessful and only 1 was deemed to be a failure. Successful results meant that practically normal facial tone returned with symmetric nasolabial folds and eye fissures, the eye could be closed, the corner of the mouth could be raised, and no gross impairment of speech existed. Poor results were those not complying with the above criteria.

The author points out that this treatment invites skepticism because it fails to reproduce mimetic responses and interferes with tongue function or associated movements.

It was agreed that mimetic function was not restored but it is noted that patients, able to compensate for this deficit by limiting the breadth of their smile, are able with practice to smile broadly.

The function of the tongue in distinct speech and effective swallowing was initially impaired in these patients to some degree but the impairment became negligible in a short time.

It was pointed out that best results could be expected if anastomosis was performed as promptly as possible, though surgery was often withheld for weeks or occasionally months in those patients who did not show a complete or permanent palsy. Operation was delayed in cases which showed even the smallest electrical signs of recovery; but despite such delays, hypoglossal-facial nerve anastomosis proved successful. Other investigators reported success after delays of as much as two and one-half years but as a rule those done under one year had the best outcome.

The investigators reported that recovery, when achieved, was joyously and gratefully acknowledged by the patients and that none complained of tongue deficits which seemed to be accepted in preference to total facial paralysis.

Failure of Manual Respiration

Peter Safar (Department of Anesthesiology, Baltimore City Hospital, Baltimore), J. APPL. PHYSIOL., 14: 84-88, January 1959

The conventional manual methods of artificial respiration are investigated in 29 curarized, anesthetized, apneic adults. Using a spirometer, the tidal volumes moved during the back-pressure arm-lift (BPAL), the modified BPAL method, the chest-pressure arm-lift (CPAL), and the modified CPAL method were recorded. All subjects were free from pulmonary disease and ranged in age from 16 to 53. Eighteen expert male rescuers with many years of experience in artificial respiration performed the manual methods used in this study. The rate was 10-12 per minute.

The BPAL method was performed with the subject lying prone and his face turned to the side so the cheek rested over the hands. The modified BPAL consisted of placing the subject's chin over his hands to tilt the head backward in an attempt to prevent pharyngeal obstruction. In the conventional CPAL method, the subject was lying supine and before starting artificial respiration the head was 1) left in the natural position (neck flexed), and 2) tilted backward (neck extended, chin up). The modified CPAL involved elevating the shoulders with a rolled blanket in order to maintain the head tilted backward.

The tidal volumes were greater and the incidence of upper airway obstruction was lower with the modified CPAL method. The study revealed that the most important single maneuver in respiratory resuscitation was extension at the atlanto-occipital joint (tilting the head backward) plus forward displacement of the mandible which prevented the pharyngeal obstruction.

The data contained in this paper prompts the following conclusions:

1. The modified CPAL provided

better ventilation and less airway obstruction.

2. The conventional BPAL method should be the last choice among the manual methods studied if ventilation is used as the criterion.

3. In actual resuscitations the accessibility and visibility of the victim's face is more important than the theoretical advantages of the prone position. The author also states that first choice of method to be taught is mouth to mouth breathing. Recent studies reveal better pulmonary ventilation is obtained in this manner than with any method which relies upon compression and expansion of the chest.

Low Back Disability

W. J. McCracken (Hamilton, Ontario), CANAD. M. Ass. J., 80:331-336, March 1, 1959

This paper deals with low back disability as encountered by the Ontario Workmen's Compensation Board. A review of 1,291 patients with low back disability was made. These patients were placed in two major groups. In Group I there were 549 cases of consecutive back disabilities in 1949. This includes all types and all degrees of severity, whether the patient had to stop work because of injury or not. Group II was made up of 742 cases which were consecutively terminated in 1953, indicating that the patient had returned to work or had recovered sufficiently to do so, or had been placed on pension. These persons were all disabled from their work for periods in excess of six weeks.

The purpose of this paper is to analyze low back disability as to cause, effect, treatment, and influencing forces or factors.

The author believes that—

1. Degenerative disease of the spine occurs much earlier in the chronological scale than has previously been suspected and is the greatest factor in the production of herniated intervertebral disk;

2. Operation for herniated disk should be reserved for cases of multiple recurrences and/or unremitting severe disability;

3. The true acute disk derangement with progressive paralysis and sphincter involvement is rare;

4. Degenerative disease of the spine adds considerably to the morbidity of low back strain;

5. A man's occupation does not "wear out" his back; rather the back "wears out" on the worker and the job.

Generally speaking a Workmen's Compensation Board may expect to assume: (1) 100 per cent liability in compression fractures of spine; (2) 75 per cent liability in contusion injuries and low back strain; (3) 50 per cent liability in proven cases of herniated intervertebral disk; and (4) 25 per cent liability in spondylolisthesis and spondylolysis. These figures are based, of course, on overall incidence.

Diet and sex do not appear to be conditioning factors in this problem. Occupation does not exert any appreciable influence until age when the degenerative factor enters the equation.

Medical therapy is adequate and based on sound scientific principles. However, it is obvious that total therapy passes beyond that of medical treatment alone.

Rehabilitation programs should be considerably extended. Certainly, 25 per cent of workmen in this analysis and maybe up to 50 per cent should adjust their occupations to their backs. Such a program will require cooperation of government for rehabilitation grants and legislation; industry and labor for job placement programs; rehabilitation departments for job training and job guidance; industrial surgeons and Compensation Boards to determine degree of disability and ability to do certain grades of work; the individual to realize his limitations and grasp the opportunities presented to him.

Preservation of Renal Function in the Paraplegic

R. Carl Bunts (McGuire VA Hospital, Richmond, Virginia), BULL. N. YORK ACAD. M., 35:87-99, February 1959

The paraplegic receives multiple body insults which begin with the initial injury and progress through multiple blood transfusions and the various surgical procedures to which he is subjected. All of these take their toll of kidney function. Severe renal damage may develop without clinical evidence, even in a patient whose bladder status is excellent when discharged. The renal function of the paraplegic patient should be reevaluated every six months for the rest of his life.

Stasis of urine must be combated by forcing of fluids and early ambulation and passive exercise. To avoid the complications arising from catheter drainage, drastic measures such as production of total incontinence may be necessary. An external apparatus for incontinence is preferable to catheter drainage.

To preserve and conserve renal parenchyma in the paraplegic patient, it is necessary to have an ambulatory patient in metabolic balance with satisfactory bladder function which does not require tube drainage.

Potential for Rehabilitation in Quadriplegic Teen-Agers

Herbert Kent (800 N. E. 13th St., Oklahoma City, Oklahoma), J. AM. M. Ass., 169:817-824, Feb. 21, 1959

The potential for rehabilitation in patients with high spinal injuries is directly related to the extent of cord severance as well as to adequate management. In the past a majority of patients with such injuries have been 20 years of age or older, but of recent years much younger quadriplegics are being admitted for rehabilitation services. Because of an elevation in the birth rate, increasing recreational pursuits, and increasing numbers of automotive accidents, these disabilities are expected to become more numerous.

Teen-agers have a potential for adjustment which will never again be as great in terms of rehabilitation. Their pattern of development during these critical years determines their place in the adult working world and neglect may create physical and emotional maladjustments which can be costly.

The extent of recovery and rehabilitation after quadriplegia has been studied in 12 patients, 8 of them victims of accidents with motor vehicles. Three detailed case histories illustrate the difficulties encountered and the extent of self care, educational attainments, and vocational prospects found in these patients.

Three considerations are necessary to give these young people a reliable new scale of values and a serenity of spirit: first, the level at which the spinal cord was injured is all-important in deciding the prognosis; second is early expeditious comprehensive therapy; the third, age, favors the adolescent in that he is more cooperative than young children and less hampered by the ingrained traits of the aged. He must cooperate in giving atten-

tion to his skin, and urinary and neuromuscular systems and, above all, learn to rely on his own capabilities.

Posture of the Trunk during the Lifting of Weights

Peter R. Davis (Royal Free Hospital School of Medicine, London), BRIT. M. J. 5114:87-89, Jan. 10, 1959

The manner in which a weight is lifted is dependent upon the size of the weight, its position in space, and the habits of the person lifting it. The larger the weight, the more likely it is that the trunk will be kept in a straight line parallel with the line of pull of the weight and the active movement of the lift performed by the limbs.

Two basic types of trunk lesions can be caused by weight lifting. These may be classed as visceral and spinal. An analysis of the mechanisms resisting forces on the trunk during lifting show why these types of injury are common. The pneumatic mechanism, a rise in intra-abdominal and intrathoracic pressure, is equally as important as the spinal mechanism of muscles, ligaments, vertebrae, and disks.

If theoretical forces are computed, the maximum lift with the trunk flexed is about 140 pounds, although with the trunk erect, the maximum can be as high as 500 pounds. Each mechanism is affected by its own group of disorders and in theory it appears that the more the trunk is flexed when lifting, the more likely it is that damage will occur.

The Management of Trauma in the Aged

P. H. Taylor, D. K. Heydinger, L. C. Roettig (The Department of Surgery, Ohio State University, College of Medicine, Columbus), AM. J. SURG., 97: 63-68, January 1959

The authors state that by 1980, 20 per cent of the population will be 60 years of age and over. The average life span at present is 68.2 years and an 80 year old person has a life expectancy of 5.4 years, yet it is important to note that the United States today has the highest death rate in the world from accidents for persons over 45 years of age. One third of these accidents is in the age groups 65 years of age and over.

The management of cases of trauma in the aged may present a difficult problem. The authors present a basic plan which includes emergency measures of life saving import to a complete history and physical examination with correlation and evaluation of all information obtained.

It is emphasized that early ambulation enhances all steps of therapy and is the key point in low morbidity during the convalescent stage. Exercises for the legs, arms, and the breathing mechanism should be made mandatory while the patient is on bed rest.

Paralysis of the Seventh Nerve

N. R. Dutt (Royal Victoria Hospital, Montreal, Canada), BRIT. J. PLASTIC SURG., 11:278-287, January 1959

Surgical procedures for seventh nerve paralysis are of two types: 1) those aiming at reinnervation such as decompression of the nerve, nerve graft, end to end anastomosis, or anastomosis with contiguous nerves; and 2) those which attempt to minimize the deformity when reinnervation is impossible. A period of waiting for spontaneous recovery should be allowed before considering surgical procedures. During this time mechanical supports can be used.

Surgery is indicated when the paralysis has persisted for six to nine months. The degree of paralysis and the sensitiveness of the patient to the disability will influence the decision to operate. In evaluating the patient for surgery, electromyography and serial strength-duration curves may give useful information.

Reconstructive surgery can do much to alleviate the physical disability. Although it is almost impossible to restore the original cosmetic appearance and functional ability in cases of long duration, the improvement will enable the patient to endure his misfortune more easily.

Elimination of the So-Called Amputation Neuromas of Divided Peripheral Nerves

Donald Munro and G. Kenneth Mallory (Boston City Hospital, Boston), N. ENGLAND J. M., 260:358-361, Feb. 19, 1959

General and orthopedic surgeons are often faced with the possibility of preventing a so-called "amputation neuroma" on the distal end of a cut peripheral nerve. However, the need for such prevention and the method of assuring it are often not recognized or practiced.

An amputation neuroma consists of bulbous swelling on the proximal end of a severed nerve. The Schwann's cells, followed later by the axis cylinders, proliferate without restraint through the end of the tubelike epineurium. Since the proliferated nerve fibers have nowhere to go, they form a knotlike, tangled mass in a matrix of scar tissue.

This neuroma may cause pain, disability, and loss of use of the limb depending on its size and location. The symptoms are most severe if the neuroma is just beneath the skin, lies in a position where it may come in contact with a bone, or is included in or adherent to the operative scar. It is least painful, or may be asymptomatic, if the cut end is permanently buried in muscular tissue far from the start of the muscle tendon, lies well below the skin, and is separated from any scars.

The authors suggest a method for preventing painful neuromas. The nerve to be divided is pulled down as far as possible. At the uppermost limits of the exposed nerve the trunk is crushed by the application of a clamp. The purpose of this clamp is to crush the cut ends of the axons within the epineural sheath, but not to damage the sheath. About .5 cm. distal to this clamp a similar clamp is applied to produce a flattened "tail," and the nerve is divided just distal to this point. The proximal clamp is replaced by a ligature tied as tightly as possible. The flattened tail prevents the ligature from slipping. The ligated epineural sheath unites and prevents the growth of the neuroma. The tied end is then completely buried in red muscle fibers well away from bone or operative scar.

The authors present a case report illustrating the effectiveness of this method of eliminating neuromas.

Whiplash Injury

Annotations, LANCET, LOND. 1: 188-189, Jan. 24, 1959

The term "whiplash" injury has been applied to the type of lesion of the neck which is likely to arise from a car accident in which the vehicle is run into from behind. Such a collision may cause an acute hyperexten-

sion of the neck followed by acute flexion. In may cases, no injury to the bones and joints is evidenced on radiographs. Possibly the symptoms result from a momentary posterior subluxation with transitory narrowing of foramina and damage to nerve roots.

One author has suggested that damage to the spinal accessory nerve may account for persistent spasm in the trapezius and sternomastoid muscles. Traction injury to the emerging second cervical root may account for occipital headaches and pain in the neck. This nerve has a large cutaneous distribution over the back of the scalp and the lateral aspect of the neck. Patients examined shortly after injury may exhibit impaired sensation in the distribution of the injured nerve root. Pain and muscle spasm develop as sensation returns.

This same author maintains that symptoms following this type injury are too often ascribed to psychological rather than physical damage. Physical therapy is important in relieving symptoms, the most useful form being hot packs applied locally to relieve muscle spasm and increase circulation, followed by traction of the neck. In some patients with severe spasm a lightweight collar may be useful.

Subluxation of the Shoulder in Hemiplegic Patients

Osvaldo Miglietta, Alexander Lewitan and Joseph Rogoff (Physical Medicine and Rehabilitation and Radiology Department, Jewish Chronic Disease Hospital, Brooklyn, New York), N. YORK STATE J. M., 59: 457-460, Feb. 1, 1959

Subluxation of the shoulder in hemiplegic patients seems to be a well-known occurrence but current literature has failed to reveal much information in regard to this subject.

A survey was run on 50 hemiplegic patients chosen at random from the Jewish Chronic Hospital. This study revealed a high incidence of subluxation, 56 per cent, on the involved side. The findings were substantiated by both X-ray and clinical evidence.

Degree of subluxation varied from a few millimeters to almost complete subluxation; however, the majority of the cases showed subluxation of about one centimeter. Neither age, duration of condition, nor spasticity showed any relation to the presence or absence of subluxation. However, a certain relationship does seem to exist between subluxation and active shoulder range of motion.

The authors feel that the present day dynamic approach to treatment of hemiplegics, out of bed in 3 or 4 days, might be a factor in frequent subluxation of the shoulder with accompanying shoulder and arm pain. Since the degree of return of motor power and function is unpredictable every means possible should be used to protect the shoulder in order to preserve function.

Abstracters for June

For the carefully prepared abstracts in this issue we are indebted to the following Association members:

Rhea Adams — Carole McNeill
Ethel Coeling — Miriam Partridge
Jean Cuthbertson — Jean Thibaut
Virginia Wirtz

Book Reviews . . . . .

The Clinical Physiology of Physical Fitness and Rehabilitation.

By Ernest Jokl, M.D., Professor and Medical Director of the Rehabilitation Center, University of Kentucky, Lexington. Cloth; price $8.50. Pp. 194. Charles C Thomas, Springfield, Ill., 1958.

Ernest Jokl's new book, *The Clinical Physiology of Physical Fitness and Rehabilitation*, is not the usual systematic text of physiology describing in detail physiological mechanisms and their underlying principles. It is, however, a treatise emphasizing the importance of three broad, general, biological principles. The book is organized in short historical sketches outlining the formulation of these principles. Each principle is demonstrated through interesting and remarkable case histories. Also, the book contains numerous illustrations in the form of photographs, drawings, and graphs, including portraits of authors instrumental in the development of each of the principles.

The three important principles discussed are:

(1) *Adaptation in pathological processes.* This principle was first formulated more than 150 years ago by the German pathologist turned philosopher, Rudolph Lotze. Later, it was further developed by the pathologist, Cohnheim. The clinical thinking and writings of Welch, Hughlings Jackson, and many others were influenced by this concept. Jokl illustrated the importance of this principle and how highly developed in some persons the physiological capacities are by a large number of examples of cardiovascular case observations. His premise is that these pathological conditions did not necessarily conflict with the adaptive processes induced by exercise and training. The extent as well as the stability of the pathological process is the prerequisite for the initiation of rehabilitation or exercise therapy. He further postulates that stabilization of pathological processes at times establishes itself without extraneous help, but equally often, it is achieved through the application of therapeutic technics that are not of physiological nature.

(2) *The central nervous system as adaptive mechanism for the attainment of motor aims.* For a long time the apparent purposefulness of all intentional human acts was known to reflect a basic trend of the nervous system. On the basis of muscle studies using electricity, Duchenne arrived at a theory that under physiological conditions single muscles do not represent functional units; that in a normal individual motor objectives are accomplished on the basis of combined activity of many muscles. However, it was Sir Charles Sherrington who first presented clearly in a systematic way the role played by the central nervous system in the regulation and adaptation of all motor acts. More recently, many research investigators have emphasized the importance of sensory cognizance in the integrative and adapted functions of the central nervous system. Jokl raises the question: "How does the nervous system attain motor aims in the presence of disease affecting the neuromuscular system?" He presents as evidence the extreme extent of motor adaptation achieved by some persons, including the motor performance of a triple amputee, a champion swimmer with general paresis, a pistol shooting record winner who was forced to use the left hand after amputation of the right, and some patients with severe rheumatoid arthritis and their particular accomplishments. Jokl lists numerous factors that may affect the degree of attainment, such as steadfast personality, high intelligence, strong motivation, the holistic nature of man. However, it seems regrettable that physiological factors or mecha-

nisms that might affect the degree of training or potential achievement of the individual were not discussed. Even the influence of age was only briefly discussed and demonstrated. Jokl states that age as such exerts a relatively small effect. However, he makes no attempt to analyze the changes occurring in the physiological mechanisms in the aging process, the role exercise plays in delaying these processes, and effect upon rehabilitation potential of the individual. Jokl repeatedly emphasized that the nature, severity, and degree of stability of the pathological process, as well as the intensity and correctness of training determine, in each case, the patient's degree of recovery of physical fitness under treatment.

(3) *The Wisdom of the Body.* The concept of "The Wisdom of the Body" was originally conceived by Claude Bernard nearly 100 years ago. Later, Cannon used this as the title of one of his books and introduced the term homeostasis. Jokl has introduced a new term "heterostasis." He refers to the pattern of automatic response in the human body which is enlisted by exercise. He emphasizes that this pattern is different from and, in fact, represents the corresponding opposite of homeostasis. During exercise, the regulatory mechanism maintains normal levels but all quite different levels more adequate to the requirement of the specific exercise. Jokl discusses in detail two basic concepts derived from the study of heterostasis. First, that these reactions reveal an integrative pattern, and that the gestalt pattern of the heterostatic response is determined by the objectives of the motor performance. Next, that every heterostatic reaction to physical activity leaves something like a memory trace in the autonomic system, and that a measure of a kind of trace under consideration is the facilitation of the adaptive responses resulting from repetition of the act. Thus, a blueprint is established of the physiological adjustment involved in the training process. Jokl illustrates these concepts with case reports of the effects of physical training in obese and in lean subjects; muscular hypertrophy, amenorrhea, extreme muscular atrophy, and in patients with hypothalamic symptoms. Jokl has suggested that adiposity, lack of previous training, impairment of cognition, and the presence of systematic diseases of the musculature may be basic determinators of physical efficiency and rehabilitation.

The fourth chapter of the book deals with the interrelationship between neuromotor and autonomic adaptations. In this chapter, Jokl discusses in detail the relationship of temperature and circulatory factors to the rate of formation of lactic acid during exercise. He also discusses the quantitative relationship existing between autonomic and neuromuscular responses. He has stated that there is a considerable degree of independence between these two functional spheres. However, autonomic adaptations in turn may modify neuromotor responses. And, he has postulated that since the latter can be measured as physical performances, competitive athletics is a good indirect method of study in the degree of appropriateness of autonomic reactions under heterostatic conditions. Again, he cites examples of case reports of champion athletes and of various type patients. He has emphasized the influence of faulty sensation and of autonomic dysfunction upon motor performance.

In the fifth and last chapter, various problems of the theory and practice of rehabilitation in relation to these three important biological principles are discussed. He discusses repetitive versus generalized exercise therapy; complex neuromuscular tasks, such as games, recreational activities, participation in music, and swimming play; the musical study as model of didactic approach; physiological components of modern track training, such as the dominant part played by the upper extremities in the initiation and control of complex body movements, the need to extend the concept of coordinative skill from the neuromotor to the autonomic nervous system; and the significance of the Finnish Sauna bath; effectiveness of motor performances and the upright postures; and lastly the physiological adaptation in rehabilitation.

In reviewing this last topic, Jokl emphasizes that the physiological adaptations to physical training, give the impression of being designed to achieve a purpose. This purpose is improving the ability of the body to deal with situations with which exercise confronts them. Jokl states that physical training causes adaptations which improve the body's ability to cope with exercise. The adaptations to training are structural, dynamic, and integrative. Finally, he emphasizes that all physiological elements of adaptation are integrative into a total pattern of adjustment. This adjustment affects the body as a whole. It will bring about changes in body build and proportion, influences its work capacity and skill, which in turn, increases the body's sensory receptiveness, its capacity for action and ability to recuperate and to make better use of its mental and physical resources. Striking examples of case studies from his wide experience are skillfully presented.

There is a certain amount of repetition throughout the book because the book is organized around broad, general princples. However, the presentation of the many remarkable case histories is informative, stimulating and thought provoking. The book is valuable as a reference book in the library of all persons interested in rehabilitation and the remarkable feats of athletes.

Ernest Jokl received his undergraduate medical training in Germany. He was for several years a scholar in and a practitioner of sports medicine in various European countries. For several years, he was professor and medical director of the Rehabilitation Center, University of Kentucky. He has written numerous scientific papers dealing with many of the general problems of performance levels during human development from childhood to old age. He has written extensively for medical journals in the over-all field of physical fitness and the therapeutic aspects of exercise.

A Method of Anatomy, Descriptive and Deductive. *By J. C. Boileau Grant, M.C., M.B., Ch.B., F.R.C.S. (Edin.), Professor Emeritus of Anatomy in the University of Toronto, and Curator of the Anatomy Museum Ed. 6. Cloth; price $11.00. Pp. 879; illus. Williams and Wilkins Co., Baltimore, 1958.*

This text is divided into eight parts: 1.) General, 2.) The Upper Limb, 3.) The Abdomen, 4.) The Perineum and Pelvis, 5.) The Lower Limb, 6.) The Thorax, 7.) the Head and Neck, and 8.) Miscellaneous. Section one covers bone, cartilage, and an excellent description of articulation and muscle structure. The brief discussion on muscle action would be of help to the beginning student in kinesiology. In this section, there are brief descriptons of the digestive, respiratory, urinary, and genital systems.

The following six sections are devoted to studies in regional anatomy and would serve as a good guide for the student of dissection. Section eight briefly covers the autonomic nervous system and bones of the skull, pectoral girdle, and carpus.

As compared with the fifth edition,

published in July, 1952, some deletions were noted. New material of particular interest to the physical therapist, such as electromyography, lubrication of joints, and the mechanics of the foot, has been added. The 862 illustrations are clear, accurate, and easy to follow. There are four and a quarter pages of reference material listed.

This reviewer used the fourth edition in conjunction with other texts and found it invaluable for dissection; this sixth edition should be of even more aid.

Rehabilitation after Illness and Accident. *Edited by Thomas M. Ling, M.D., M.R.C.P., Consultant Psychiatrist to the Marlborough Day Hospital; formerly Medical Director of Roffey Park Rehabilitation Centre; and C. J. S. O'Malley, C.B.E. M.B., Medical Director, Camden Road Rehabilitation Centre; Consultant in Physical Medicine, Queen Mary's Hospital, Roehampton. Price $3.50; pp. 119. Bailliere, Tindall and Cox, London; Williams & Wilkins Co., Baltimore, 1958.*

Rehabilitation after Illness and Accident was written by a team of people associated with St. Thomas's Hospital, London, either as consultants or as former students and edited by Dr. Ling and Dr. O'Malley. Since the book is a British publication it deals with rehabiltation and resettlement through its own organization of rehabilitation, the Ministry of Labour and National Service.

The book is written for all people concerned with the rehabilitation and resettlement of the disabled: "doctors in both hospital and private practice, social workers and occupational therapists in the hospital field, and Disablement Resettlement Officers in the service of the Ministry of Labour and National Service." (Preface, page v)

The introduction is an interesting presentation of the historical background of rehabilitation and resettlement in Great Britain. Having given this background the medical, surgical, and psychiatric aspects of rehabilitation are then discussed by the team of doctors and an occupational therapist. The emotional factors in rehabilitation are classified by Dr. Ling as being in three main time periods or stages: those that occur in the transition period from health to disease, that are concerned with the period of accepted illness, and those that accompany the period of convalescence. "The speed and extent to which a patient emerges from the convalescent or third phase of his illness depends a great deal on his motivation." (page 17)

In the chapters that follow there are discussions of rehabilitation in general medicine (cardiovascular disease and gastro-intestinal diseases); in thoracic disease (acute illness, pulmonary tuberculosis, etc.), after cerebral surgery and injury; and in general and orthopedic surgery. Each chapter or each illness described in the chapter is related to the patient going through these emotional periods and who, later as an employee, must experience others. Many examples are cited and suggestions given as to how the Ministry of Labour can assist in rehabilitation and resettlement. There are no illustrations in the book but references are listed at the close of some chapters.

The chapter on "Occupational Therapy in Rehabilitation" was written by Barbara M. Stow, M.A.O.T., Head Occupational Therapist, St. Thomas's Hospital. This chapter may be of interest to therapists in this field as it discusses thoroughly "the work of an occupational therapist who is treating a patient in order to enable him to return to work." (page 85)

The final stages of rehabilitation are stages of resettlement related to psychological readjustment, vocational guidance and training. The methods of industrial rehabilitation, as managed by the Ministry of Labour and National Service, and the administrative problems are explained in the closing chapter which includes a list of ministry of Labour Resettlement Units.

The purpose, theme, and content may be summarized in the following paragraphs quoted from the book: "Thus rehabilitation and resettlement are medicosocial procedures in which the patient himself has an active role to play. They are procedures that are done with patients rather than to patients.... This book is an endeavour to guide doctors, social workers, physical therapists, and Ministry of Labour officials in the respective parts they should play in this new field, but the ultimate responsibility for success or failure is a medical one. The whole process of rehabilitation must be continuous, the patient moving from hospital on to a rehabilitation centre and thence to training if one or both are indicated. There should be no gaps in the process, otherwise the patient may easily relapse or regress and the rehabilitation process will have to start all over again and throughout the book, this holistic or total approach to the patient is emphasized." (page 6)

This book should be of value to medical students, social workers in training, and those in the field of rehabilitation and resettlement who are not acquainted with the services of the Ministry of Labour and National Service. The place of physical therapy in rehabilitation is discussed only incidentally through examples, such as resistive exercises, as a means of improving the physical status of the patient. Aside from listing a few principles in training the disabled, physical therapy is mentioned only briefly throughout the book.

Psychology of Medical Practice. *By Marc H. Hollender, M.D., Professor and Chairman, Department of Psychiatry, State University of New York; and Director, Syracuse Psychiatric Hospital. Cloth; price $6.50. Pp. 276; illus. W. B. Saunders, Philadelphia, 1958.*

The author in his preface explains that his book is grounded in psychoanalytic psychology according to Sigmund Freud's theories. Conflicting interpretations in the last part of the book become obvious to the reader. With aid of three collaborators in the medical field, Dr. Hollender has accomplished his purpose in this book—to turn a psychological spotlight on the patient.

Medicine, surgery, obstetrics, and pediatrics have been given special consideration, and a separate chapter has been devoted to the carcinoma patient. Two chapters deal with both theoretical and practical doctor-patient relationships, and there are concluding chapters in which the psychological effects of medicinal and nonmedicinal prescriptions are discussed.

This book provides insight into medical problems of patients in many categories and should help the physical therapist in collaborating with other members of the medical team.

The reviews published here do not necessarily represent the opinions of the American Physical Therapy Association.

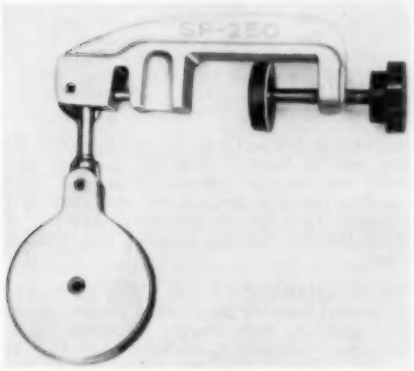
The Book Reviewers for June will be found on page 442.

What's New . . . . . .

For more information on items write to The Physical Therapy Review, 1790 Broadway, New York 19, N. Y.

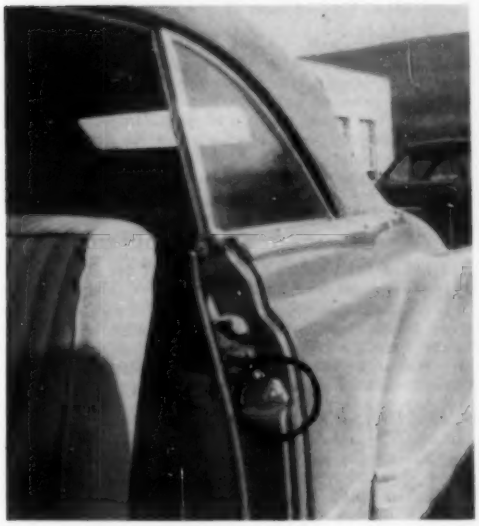
New items which may be of interest to physical therapists will be mentioned in these pages each month. The accompanying explanations are made by the manufacturers and have not been investigated by the *Physical Therapy Review.*

60. Pulley Bracket Assembly



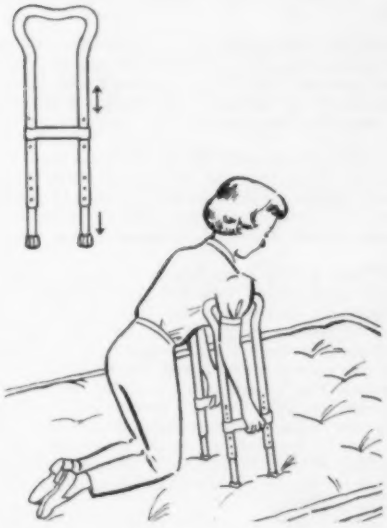
The Elgin Pulley Bracket Assembly is a versatile and useful pulley assembly that is adaptable to any physical therapy department, hospital ward, or doctor's office. Also ideal for home treatment programs it easily fits and attaches to doors and frames. Excellent for upper extremity exercises. The ruggedly constructed bracket assembly is adjustable from 1" to 2½". A non-marking rubber pressure post assures stability of the bracket. The sturdy 2½", ball-bearing swivel-type pulley permits any direction of pull with a minimum amount of pulley friction. For use with ⅛" rope or cable. Elgin Exercise Appliance Co.

61. Safety Door Latch



(Left) Scientifically tested, precision made. According to the manufacturer this spring-loaded plunger latch keeps passengers safely inside car, prevents doors opening from sudden impact and accidents. Alexander Kurilenko.

62. Mat Crutches



For wide use in mat therapy, Mat Crutches have 3-position adjustment hand grips. Legs are easily and securely adjusted to heights of 30, 32 and 34 inches. Constructed of rugged, chrome-plated, alloy tubing for years of service, the weight is only 3½ lbs. each. Rehabilitation Products.

Book Reviewers for June

Marian Boyer, Physical Therapist, Dallas, Texas.

Margaret Godbey, Physical Therapist, D. T. Watson Home for Crippled Children, Leetsdale, Pennsylvania.

B. K. Kaplan, Physical Therapist, Los Angeles.

Janet A. Wessel, Ph.D., Associate Professor, Department of Health, Physical Education, and Recreation, College of Education, Michigan State University, Lansing.

Positions Available

HENRY FORD HOSPITAL, Detroit, Michigan has an opening for a staff therapist; 5-day wk., all holidays, group insurance, and retirement benefits. Daily in-service staff training program. Complete cross-section of medical and surgical disabilities treated. Department under direction of a physiatrist. Write Dr. Wm. C. Schaefer, Division of Physical Medicine and Rehabilitation.

A CHIEF AND A STAFF PHYSICAL THERAPIST 510-Bed General Hospital, good location, paid vacation, sick leave, holidays and retirement plan. Apply to R. J. Maifeld, Spartanburg General Hospital, Spartanburg, S. C.

PHYSICAL THERAPIST I—Immediate opening in large general hospital; start $376.00 per mo.; good personnel policies; 11 holidays, vacation & sick leave. Must be registered or eligible; Apply Personnel Director, 732 East Main St., Stockton 2, Calif.

Registered PHYSICAL THERAPIST needed for well equipped department in association with nationally known crippled children hospital. Splendid, sound personnel policy and cordial atmosphere. Apply Personnel Director, Elyria Memorial Hospital, Elyria, Ohio.

WANTED: 4 PT'S to work with physically handicapped children in the State of Illinois. Therapists will instruct the family in carrying out the therapy program. Salary range: $5,400 per year for one year of experience to $6,300 per year for five years' experience. A $200.00 increase per year is granted until the maximum of $7,300 is reached. One month vacation at the end of one year of service, free Blue Cross. Therapist will be furnished with a new station wagon and needed equipment; $100.00 petty cash for traveling expenses. If interested write to: Mr. Albert W. Arnold, Executive Secretary, Illinois Elks Association Crippled Children's Commission, Inc., 2750 Lake View, Chicago.

PHYSICAL THERAPIST, FEMALE, for expanding department. Salary, $4,120 to $4,800. Good personnel policies, paid vacation, sick leave, Blue Cross-Blue Shield, annual salary increment, 37½ hour week. Crossroads is in a beautiful new building, well equipped, and nationally recognized as a leader in the field of rehabilitation. Good medical supervision. Write or call Roy E. Patton, Executive Director, Crossroads Rehabilitation Center, 3242 Sutherland Avenue, Indianapolis, Indiana. WAlnut 6-2482.

IMMEDIATE OPENING: Qualified physical therapist to serve in 1,000-bed modern hospital for the long-term ill. Starting salary to $4650.00. Liberal fringe benefits. Apply to Nell K. Levy, M.D., Director, Physical Medicine and Rehabilitation, Drake Memorial Hospital, Cincinnati 16, Ohio.

Do you want to live and work in romantic New Orleans for one year or longer? 3000 bed teaching hospital. Affiliated two medical schools. Four staff positions vacated thru marriage and removal from city. 40 hour, 5 day week. Civil Service, retirement benefits. Apply Personnel Director, Charity Hospital, New Orleans 12, Louisiana.

PHYSICAL THERAPISTS—(3), Male or Female, for 8-week summer camping programs in Pennsylvania, June 27 to August 26, 1959. Salary, $400-$500, plus full maintenance—Orthopedic Consultants available. Apply: Charles H. Freeland, Camping Administrator, Pennsylvania Society for Crippled Children and Adults, Inc., 1107 North Front Street, Harrisburg, Pa.

Bethany Hospital, Kansas City, Kansas. Opening for physical therapist; 250-bed general hospital completing enlarged department. In- and outpatients, adults and children. Salary open. Contact Mrs. Mary Alderman, Chief Physical Therapist, Bethany Hospital, 51 North 12th, Kansas City, Kansas.

Physical Therapist for field services in Westchester County New York Department of Health. Work with orthopedists, physiatrists, and general practioners in care of patients in home and clinic. Treatments for all age groups with varied disabilities. Salary $4,230 to $5,430; 35 hour week. Social security and pension. Apply Miss Doris Krumlauf, Supervising Physical Therapist, Westchester County Department of Health, White Plains, New York. Phone WH 9-1300 EXT. 456.

GRADUATES OF APPROVED SCHOOLS FOR PHYSICAL THERAPISTS, *new legislation provides that,* under certain conditions, *you may now practice in California pending your registration in this state.* California has positions open in State Hospitals, the Veterans Home and special schools for handicapped children. Good salaries; liberal employee benefits and retirement plan; promotional opportunities. Streamlined examinations twice a month in San Francisco and Los Angeles. Write State Personnel Board, 801 Capitol Avenue, P.T. 71, Sacramento 14, California.

REGISTERED FEMALE THERAPIST for staff position in new department to be completed later this year. Complete cross-section of medical and surgical disabilities. Forty board men in a hospital-clinic organization. University town. Starting salary $375 per month. Contact Mr. Walter Dworschak, Physical Therapy Department, Carle Hospital Clinic, Urbana, Illinois.

STAFF PHYSICAL THERAPISTS (2)—new grads accepted; 37½ hr. week Mon. thru Fri. In-service training. Starting from $3700 to $4300 depending on experience. Liberal vacation, sick leave, Blue Cross, etc. Apply Mt. Sinai Hosp. Rehab. Dept., 5th Ave. & 100th St., New York City. TR 6-1000, Ext. 317 or 318.

Positions Available

PHYSICAL THERAPISTS: Ten general hospitals located in eastern Kentucky, southwestern Virginia, and southern West Virginia, operating on a regional pattern. Three Central and seven Community hospitals, Board certified Physiatrist in each Central hospital supervises physical therapist within region. Active ambulatory patient clinics, progressive minded medical staff, modern equipment. Salaries at $4,440, $5,340, and $6,420 per annum depending upon qualifications. 40 hour week, 4 weeks paid vacation, 7 paid holidays, anual increment. Write To: Miners Memorial Hospital Association, Box #61 Williamson, W. Va.

WANTED: Qualified Physical Therapist, male or female, for Physical Medicine and Rehabilitation department in a 600-bed general hospital 40-hour week; three weeks paid vacation; sick leave benefits and retirement program. Write: Herman J. Bearzy, M.D., Miami Valley Hospital, Dayton 9, Ohio.

ADDITIONAL PHYSICAL THERAPIST NEEDED: Well equipped, new air-conditioned department in a 125-bed J.C.H.A. Hospital. Excellent working conditions, 5-day week. Salary dependent upon qualifications. Apply to Personnel Director, De Paul Hospital, Cheyenne, Wyoming.

WANTED: Physical therapist to take charge of dept. in 190-bed general hospital. Salary commensurate with experience; regular increases; paid vacation; legal holidays; 40-hour work week; social security and retirement benefits. Write Robert C. Fields, Supt., Philipsburg State Hospital, Philipsburg, Pa.

CEREBRAL PALSY THERAPIST in county health department. Progressive program in expanding Bay Area. Requires California cert. plus 1 year exper. in phys. ther.: $315-$505 a month. Contact I. Schnayer, Alameda County Civil Service, 188 12th Street, Oakland 7, Calif.

PHYSICAL THERAPIST for modern 350-bed hospital in a New England community near Cape God. Excellent working conditions and personnel policies. Salary dependent on experience. For further information or application write Personnel Director, St. Luke's Hospital, New Bedford, Mass.

OPPORTUNITY: Rapidly-growing and progressively equipped P.T. department, serving a 535 bed General Hospital which itself serves a 200 mile radius. Tremendous opportunity for growth—very good additional benefits—salary is competitive depending on experience. Immediate opening. Please write Personnel Director, Sacred Heart Hospital, W. 101—8th Avenue, Spokane, Washington.

BEAUTIFUL NEW YOUNKER MEMORIAL REHABILITATION CENTER, recent 120-bed addition to Iowa Methodist Hospital, has openings for staff therapists. Both in- and outpatient work. Competent supervision, professional staff and assistants. 40 hour week, good pay and benefits. Opportunity for promotion. Excellent working relationships. Des Moines is city of over 200,000 population with outstanding recreational and cultural events. For complete information contact Personnel Director, Iowa Methodist Hospital, Des Moines, Iowa.

Physical Therapist in Cerebral Palsy outpatient center. Salary from $3,800 to $5,000 depending on qualification and experience. Social Security, sick leave, vacation, forty hr. week. Apply United Cerebral Palsy Center, 621 N. McArthur, Panama City, Florida.

REGISTERED PHYSICAL THERAPIST needed in Seattle, Washington to provide for an expanding department. Good salary with sick leave, paid vacation, life insurance, retirement. Apply Mason Clinic-Virginia Mason Hospital, 1118 Ninth Avenue, Seattle, Wash.

Meharry Medical College has an opening for one STAFF PHYSICAL THERAPIST beginning June 1. Job details may be secured by writing: Mrs. DeLois J. Wilkinson, Meharry Medical College, Nashville, Tennessee.

Opening for Staff Physical Therapist in outpatient Rehabilitation Center directed by physiatrist. Wide variety of treatment program. Coordinated physical, occupational, speech-hearing, psychological, vocational, and social services. Excellent personnel policies; up to 3 weeks' vacation. Contact R. A. Silvanik, Administrator, The Rehabilitation Center of Summit County, Inc., 326 Locust Street, Akron 2, Ohio.

EXPANSION PROGRAM necessitates increasing present physical therapy staff of 8. Three full time physiatrists provide medical supervision. Excellent starting salary and fringe benefits commensurate with experience. Educational opportunities, both clinical and didactic, are excellent. Good opportunities for advancement. Overtime paid in excess of 5-day 40-hour work week. Write Director of Medical Services, Institute of Physical Medicine and Rehabilitation, 619 Glen Oak Avenue, Peoria, Illinois.

Classified WANT-ADS

New Rates
Effective July 1

$3.00 for the first line
1.00 each additional line

Typewrite your advertisement carefully and count 50 characters and spaces per line.

ALL WANT-ADS MUST BE PAID FOR IN ADVANCE. Make checks or money orders payable to the American Physical Therapy Association.

Closing date for copy and cancellation is two months preceding publication date.

Institutions or physical therapists who do not wish their identity known may arrange for Blind Ad Code No. All such want-ads must include the following which will be counted as 2 lines:

Address replies to _____ care of **The Physical Therapy Review, 1790 Broadway, New York 19, N. Y.**

IMPORTANT

It is understood and agreed that the publisher shall have the right to reject or change the wording of any advertisement which in the opinion of the Editorial Board shall not be in agreement with the ethical standing of this publication.

Positions Available

PHYSICAL THERAPIST, experienced, to supervise expanding department in 300-bed hospital; also staff physical therapist, experience unnecessary, excellent personnel policies. Apply Personnel Director, the Memorial Hospital, Worcester, Massachusetts.

WANTED: MALE PHYSICAL THERAPIST to establish and take charge of a physical therapy department in a 200-bed general hospital. Would like to know amount of experience, salary expected, number of work hours per week. Write E. J. Lauretti, M.D., Mercy Hospital, Muskegon, Michigan.

EXCELLENT JOB OPPORTUNITY for qualified Physical Therapist. Immediate opening in new 400-bed hospital. Southern California. Salary $375-464. Liberal benefits including paid sick leave, holidays, vacation, Retirement membership, hospital insurance at nominal cost. Apply Personnel Director, Courthouse, Riverside, California.

STAFF THERAPIST for growing dept. in 380-bed general hospital. Must be eligible for licensure in Minn. Forty-hr. week. Liberal employee benefits. Salary open. Write Pers. Dir., Miller Hospital, St. Paul, Minn.

STAFF POSITION: Second registered physical therapist; 160-bed acute general hospital, 50-bed addition to be completed in approx. 1 year. Community of 40,000, home of world famous Frontier Days and Warren Air Force Base. Starting salary commensurate with experience and qualifications. Pd. holidays, sick leave and vacations. New Nurses' Residence quarters available at reasonable rates. Apply: Administrator, Memorial Hospital, Cheyenne, Wyoming.

Opening for TWO REGISTERED STAFF PHYSICAL THERAPISTS in modern 800-bed general hospital. Wide variety of patients. Forty-hour week, annual two week paid vacation, sick leave, salary dependent upon experience. Approved school of physical therapy connected with the department. Contact Jack C. Hays, Chief Physical Therapist, Physical Medicine Department, Baylor Medical Center of Dallas, 3500 Gaston Ave., Dallas, Texas.

PHYSICAL THERAPIST—For general hospital near N.Y.C. Affiliated residence N.Y.U.-Bellevue. Active physical medicine and rehabilitation program. Start $4150, annual increases to $4,960. Must be eligible for registration in New York State. Liberal benefits. Contact Personnel Supervisor, Grasslands Hospital, Valhalla, N. Y. LY 2-8500, Ext. 61.

Wilmington, N C.: 300-bed general hospital has opening for an associate R.P.T. in well equipped department. Salary open. Excellent beaches, fishing, hunting nearby. Write to Charles N. Darden, P.T. Department, James Walker Memorial Hospital, Wilmington, N. C.

STAFF PHYSICAL THERAPIST for Cerebral Palsy School-Clinic, of Atlanta, Inc. Day School program, clinic and outpatient services for 100 children ranging in age from 18 months to 18 years. Five-day work week, public school holidays, two weeks' summer vacation, sick leave, salary open. Send qualifications and work summary to: Mrs. Harold M. Seymour, Administrator, the Cerebral Palsy School-Clinic of Atlanta, 1815 Ponce de Leon Avenue, N.E., Atlanta 7, Georgia.

Registered Physical Therapist, new graduate, experience not necessary. Position now available. Salary open. Write to: Dr. Dwight Frost, Physical Medicine and Rehabilitation, University of Nebraska College of Medicine, 42nd and Dewey Ave., Omaha, Nebraska.

QUALIFIED PHYSICAL THERAPIST for outpatient cerebral palsy treatment center. Liberal salary. Two months' vacation, sick leave. Liberal personnel policy. Contact Robert Schlitt, Director, Peninsula Cerebral Palsy Training Center, 901-24th Street, Newport News, Virginia.

PHYSICAL THERAPIST: In Hospital-School for rehabilitation of children with orthopedic handicaps. Complete interesting program. Good salary, merit increases. Annual paid vacation, sick leave, excellent retirement plan. Write to Director of Physical Therapy, Illinois Children's Hospital-School, 2551 N. Clark Street, Chicago 14, Illinois.

PHYSICAL THERAPIST: Experienced. Wanted for active, well equipped department in a 154-bed hospital with expansion program under way. Pleasant surroundings in north suburb of Chicago. Modern housing. Recreational facilities and cultural activities available. Good salary, 40-hour week, varied cases treated. Contact Personnel Director, Highland Park Hospital, Highland Park, Illinois.

QUALIFIED PHYSICAL THERAPIST for staff position in a 410-bed hospital. Completely remodeled and well equipped department, wide variety of cases divided equally between hospital and outpatient. Forty hour week, paid vacation, sick leave and holidays; salary open, depending upon qualifications and experience. Excellent opportunity in a growing community located in the Valley of the Sun, winter capitol of the Southwest. Apply Personnel Director, Good Samaritan Hospital, Phoenix, Arizona.

REGISTERED PHYSICAL THERAPIST for well equipped department in 425-bed general hospital, located in pleasant, residential, lake-shore suburb of Chicago. Good salary, 40-hour week, three week vacation. Apply: Personnel Office, Evanston Hospital, 2650 Ridge Avenue, Evanston, Ill.

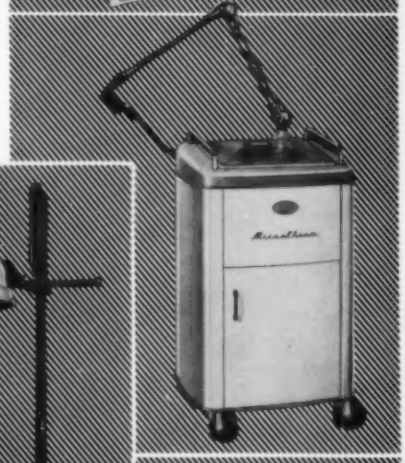
Wanted: QUALIFIED PHYSICAL THERAPIST, preferably one also registered in OCCUPATIONAL therapy. Experience in Cerebral Palsy desirable. Position: Director-Therapist of a growing Rehabilitation Center. Salary open. Write: Mario E. Rivera, RPT-OTR, Director, Easter Seal Therapy Center, Tallahassee, Fla.

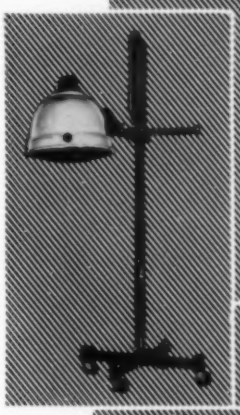
WANTED: Qualified physical therapist for outpatient Cerebral Palsy Clinic; five-day week, six weeks' vacation with pay, salary commensurate with experience. Write Dr. F. B. Kilgore, 202 Ritter Building, Huntington, W. Va.

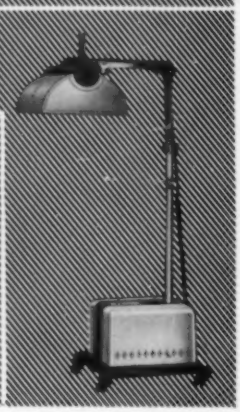
CHIEF PHYSICAL THERAPIST opening available July 1, 1959 to supervise expanding therapy program. Salary open, 3 weeks' vacation, sick leave, merit increases; 250-bed hospital soon to have new department. Hospital located in residential area at the foot of the Rockies. Apply Personnel Office, St. Anthony Hospital, Denver, Colorado.

from intensive research...

Burdick







MODERN EQUIPMENT
for the
MEDICAL PROFESSION

ELECTROCARDIOGRAPHY — After 10 successful years in the manufacture of electrocardiograph equipment, we are proud to present the new dual-speed EK-III. This unit operates at either the standard 25 mm. per second speed or at 50 mm. per second. This higher speed facilitates the study of details of rapid electrocardiographic deflections.

ULTRASOUND — The all-new UT-400 now provides *continuous* ultrasonic energy for conditions where both heating and mechanical effects are desired; or *pulsed* energy where a greater proportion of mechanical effect to thermal is indicated. Here is the ultimate in therapeutic versatility.

DIATHERMY — The Burdick line of diathermy equipment includes the MW-1 Microtherm® for microwave diathermy and the MF-49 unit for conventional short wave diathermy.

INFRARED THERAPY — The Zoalite series of infrared lamps has become a standard of quality and performance for the hospital, physician's office and home use on prescription.

ULTRAVIOLET — Burdick hot quartz mercury arc lamps assure effective treatment with a minimum of exposure time.

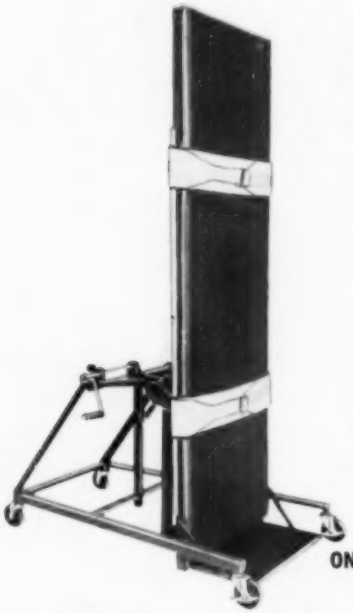
CARDIAC MONITOR — The Telecor monitors the heart beat during surgery; either electrically through hypodermic needle electrodes, or mechanically through a digital pulse pickup.

THE BURDICK CORPORATION
MILTON, WISCONSIN
Branch Offices: NEW YORK • CHICAGO • ATLANTA • LOS ANGELES
Dealers in all principal cities

THE *New* PRESTON STANDING TABLE

Preston Catalog Number PC 7194-U

This newly developed Standing and Treatment Table is manually operated by means of a hand crank. The sturdy base, constructed of angle iron, has a brown enamel crinkle-finish. The table top is 24" wide; 78" long; 32" high, and is upholstered with durable waterproof leatherette.



features . . .

EASE OF OPERATION—A special worm and gear arrangement permits tilting the table with minimum effort. The crank handle is near the top, obviating the need for the therapist's bending.

TILTS FROM HORIZONTAL TO VERTICAL position (from 0—90 degrees). Locks automatically at any desired angle.

EASY PASSAGE through narrow doorways and corridors. Over-all width held down to 29". Crank handle folds out of the way.

EASY TRANSFER of patient from bed or stretcher to table. Height of top—32" from floor.

EASILY MOVED with its four large 4" ball bearing swivel casters, two of which have step-on brakes.

COMFORT TO PATIENT is assured by upholstered top of durable waterproof leatherette. Footboard has a non-slip surface. Two heavy-duty restrainer straps hold patient securely on table. Square rails on each side of table permit placing restrainer straps or auxiliary equipment in any desired position.

PROTRACTOR to indicate degree of tilt from 0 to 90 degrees.

STORED IN SMALL SPACE—Requires only 29" x 44" for storage, with top in vertical position.

ONE YEAR GUARANTEE AGAINST DEFECTS IN MATERIAL OR WORKMANSHIP

THE *Only* QUALITY TABLE AT AN *Economy Price!*

Designed for EASE OF OPERATION, COMPLETE SAFETY and SIMPLICITY, with a resultant LOWER PRICE THAN COMPARABLE UNITS.

CATALOG NO.
PC 7194-U Standing Table, including Upholstered Top. Complete with 4" casters and two Restrainer Straps
PC 7195S Additional Restrainer Straps 7.50
Prices F.O.B. New York, N. Y.

$245

Send all orders directly to

J. A. PRESTON CORP.
175 FIFTH AVENUE, NEW YORK 10, N. Y.